

December 1959—35 cents

USA Wins Nordic—Page 9

# MODEL AIRPLANE NEWS



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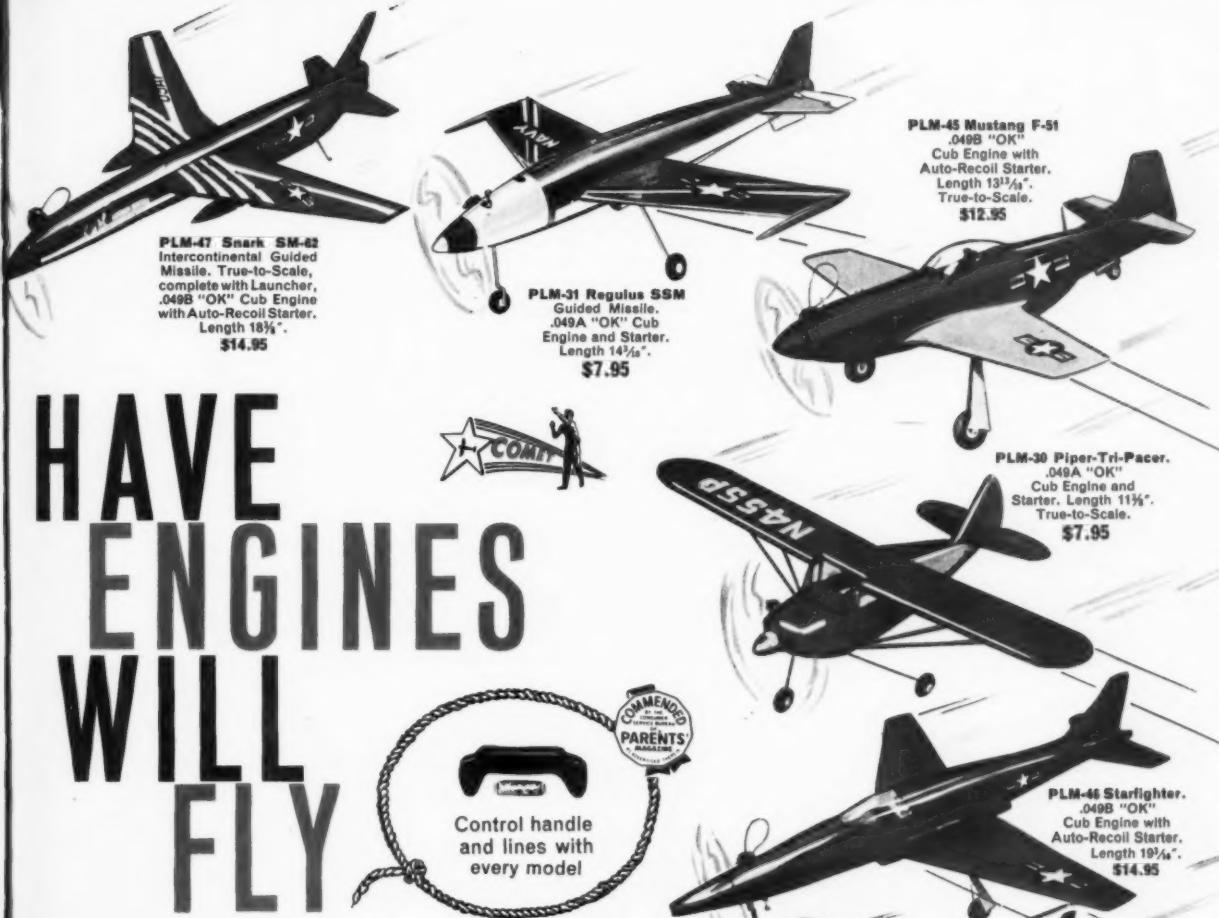
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**Foreign  
Notes**

### GREAT BRITAIN

Promising, in the words of the sponsor, "the finest display of models in the world," Britain's National Models Exhibition is to be held at the New Horticultural Hall, in the heart of London, December 31 through January 9. Organized by Percival Marshall & Co. Ltd., publishers of *Model Aircraft* and *Model Engineer* magazines, the show combines the Model Aircraft Exhibition, inaugurated last year, and the annual Model Engineer Exhibition, now held for the 34th time. All types of models will be on display: boats, cars, locomotives, ships, traction engines, home-built scientific apparatus and workshop equipment and, of course, just about every type of model airplane.

Due to a nationwide strike in the printing industry, British model builders were without their usual model magazines during July and August. As a result, manufacturers' announcements of new products, seriously delayed, are now coming twice as thickly. New engines include the Davies-Charlton Bantam .045, Frog 049 and Allen-Mercury 049—all Half-A glow motors aimed at the beginner market; the Merco 35—Britain's first real stunt 35—and its 29 counterpart; Rivers .21 cu. in. diesel and a specially modified extra-hot version of the Rivers Silver-Streak .15. A modern 8-channel fully-transistorized RC outfit is promised from the makers of Pathfinder single-channel equipment. International Model Aircraft (pioneers of nylon props) have introduced the first two sizes of a new range of Frog moulded props. Blade shape is a breakaway from previous Frog practice and is now similar to the Tornado pattern.

Among new kits, one is particularly noteworthy: a new Frog UC scale Hawker Tempest, 26 in. span, for .15-.20 motors. Kit is extensively prefabricated from top quality balsa and ply and contains practically everything needed, including a special rubber-tipped scale spinner, rubber-tired dual-hub wheels and all nuts and bolts. Model was designed by Ron Aaron, a professional scale modeler par excellence.

GERMANY

Two years ago in this column, we gave some details of an electrically powered model. Believed to be the world's first successful electric aircraft, it was built by Britain's Colonel Taplin, spanned 7% ft. and weighed 8 lb. including 24-volt motor, 22-oz of batteries and 3-channel radio.

Since that time, experiments have been going on in Germany and Japan, using lightweight miniature electric motors in small free-flight sport models and with quite startling results.

In Germany, Fred Miltky, designer for the big Johannes Graupner model firm, has produced several small models powered by tiny 3-volt 3/8-oz motors with internal reduction gearing. Typical of these models is one having a span of 78 cm. (30.7-in.) and weighing 4.6 oz. Of this weight, 1.8-oz is accounted for by two miniature 2-volt cells. Lightweight models of down to 3-oz have also been made.

The motor the Gnom T-03, now being marketed by Graupner under the name "Mikromax," is only 20 mm. dia. and 23 mm. long, and is also used as the basis of (Continued on page 37)

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# MAN

31st Year Publication

## MODEL AIRPLANE NEWS

JAY P. CLEVELAND, President and Publisher

December 1959

Vol. LXI, No. 6

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by  
William  
Winter

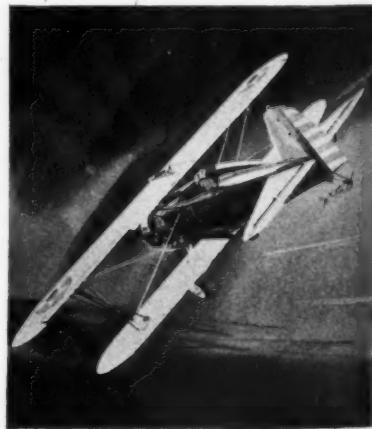
► Soft spot for the annual Inglewood (Calif.) Flitemasters free-flight scale contest. At one time, this contest was only a local flying session. This fall's tenth annual meet attracted more true-to-life models than did the Nationals. It took 300 feet of rope and a public address system to control the crowd at the Los Angeles Model Airport.

Traditionally, judging is done the night before by members of the historical group of the Institute of the Aeronautical Sciences. Movies of World War I, including shots of the Albatros production line, packed an auditorium.

The models once again reflected the inspiration that drives the guys who point for this "must" contest. Harold Osborne's Santos Dumont had a basket cockpit woven to true scale. Folding wings and an airspeed indicator that worked featured Bob Bolling's D. H. Moth. The line-up shows a fantastic variety of subjects. These jobs all do a real job of flying. May the Flitemasters have many more such annual meets. No gliders, no stunt, no speed, no wires! Models just looked and flew like airplanes—a capital idea!

► Canada thought of it first—an RC Nationals. Sponsored by Model Aerodynamics Association of Canada—up there they blame everything on MAAC, we guess, instead of AMA. Actually, this meet held at the Mount Hope Airport, Ontario, was only a eastern regional meet; next year, they hope that eastern and western RC "nationals" will be held simultaneously. On Sunday, of Labor Day weekend, they qualified 12 top fliers (never call these things eliminations, men!) who fought it out Mon-

day in a wind that gusted to 28 mph. Toronto Radio Control Club took five out of eight trophies; multi winner, Ron Chapman, had a tapered low wing . . . on September 20, at Fourth Annual Tri-O-Rama meet (run by Rich's Hobbytowne who had the bright idea of putting flying circles outside the market along well traveled Route 6, Parsippany, N.J.), Carl Thigpen, Newark, N. J. set a national C speed mark of 169.8 mph—and that's worth mentioning . . . Bill Judge (Pied Piper, May '59 MAN) thinks you can get similar results to Wooten's diamond airfoil (Guided Missile, Oct. '59 MAN) by gluing an  $\frac{1}{8}$  square spanwise at 35% chord of regular airfoil—covered over we imagine. Should be easy to find out! Another Judge suggestion re the diamond section. Draw an upright at 35% of (Continued on page 59)



NEXT MONTH'S COVER Boeing P-12F

#### PLANE ON THE COVER

"Surprise" win by America of the international "Nordic" trophy credited to Jerry Ritz, shown with the Swedish Cup, and one of his six towline mods. In the background, appropriately enough, is the United Nations building, in New York, and the flags of many nations rippling colorfully. His story appears on page 9.

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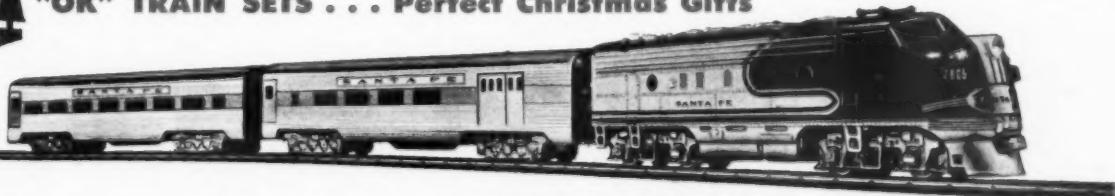
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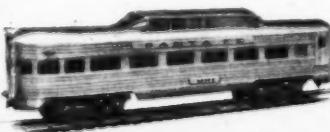
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Ritz, Sokolov at fly-off, with one of the three Russian managers watching. US, no manager; Denzin, Germany, helped. (Moulton pic.)

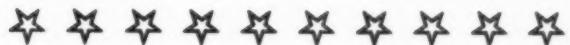


The world famous Swedish (Nordic) Cup, an international post-war trophy already rivaling the Wakefield in tradition, competition.

US team, L to R, Bob Wiegle, Bob Sifleet, Jerry Ritz. As had the Wakefield team before them, the boys flew the Pan Am 707 to Europe.



# America WINS the Nordic!



*On August 23, Bourg-Leopold, Belgium, USA took Swedish Cup in five-man fly-off, 5th as team. Finns first as team.*

by GERALD RITZ

► In the wee hours of the morning of August 20 we bid goodbye to George Gardner of Pan Am, and climbed on the 707 jet for the major leg of our flight to Bourg-Leopold in Belgium for the 1959 Nordic Glider International Competition. The "we" consisted of Bob Wiegle—western states team member, Bob Sifleet—eastern states team member, and the writer, central states team member.

After a short stop at London, we arrived at Brussels, rented a car and set out on the two hour drive to Bourg-Leopold. We were the first to arrive at the military reservation where the contest was to be held and talked a sergeant into bedding us down for the night with the request to wake us at 5:30 a.m. as we wanted to get in a good day of test flying.

The top of my model box had been bashed in and the stabs from all four of my models were broken. The top



Habib of Pakistan ready for flight. Ran up perfect score then down-drafted in fly-off for



Austrian (Scheiderer) asymmetric, poly the in-board wing, dihedral outboard. Photo Bill Park.



Naftali Kadom, Israel, used end plates. Ship, left, sheeted top of wing, other normal. (Park.)



Roser, Hungary, Warren-girder fuselage. Interpreter, L, holds solid Jedelsky-wing type job.



Soave, Italy, geodetic construction, streamline pod, triangular back of wing. Both pix by Park.

half of the rudder on my #1 calm weather model was mashed into a dozen pieces. After mad repairs, I finally joined Wiehle and Sifleet for a few hours of sleep.

The flying site was a training field consisting mainly of sand dunes with millions of bumps, and the appearance of the Sahara Desert. Wiehle had two all-weather models, Sifleet had three all-weather models, while I had two windy weather models and two calm weather models designed especially for European weather. It was much more windy than we had anticipated, estimated 20 mph, so I tried flying my windy weather models that had won for me in the elims and semi-finals.

Wiehle put up some beautiful flights and Sifleet also was doing fine. My windy weather models, however, did miserably. The wind, although blowing quite hard, was very steady and smooth, and there just didn't seem to be enough turbulence to get the models to work into dynamic soaring. In the late afternoon, the wind had slowed to about 15 mph and in desperation I switched to my calm weather models. Performance was much better, but I had a terrible time towing these high aspect ratio jobs in the wind. In late evening, we dragged home dead tired. Wiehle and Sifleet had each made about 20 flights, and I had made nearly 50 flights. Both Wiehle and Sifleet were satisfied with their tests, and I had made up my mind that I would fly my calm weather models.

Back at the barracks, the other teams were arriving, and

I had many reunions with old friends, while Wiehle and Sifleet met many of the fliers from other countries that they heard about.

Next morning, we resumed test flying. It was much calmer, and the air was becoming much softer with patches of light lift. Wiehle and Sifleet made a few test flights with all of their models performing very well, and then they went in to process their models, while I worked out until lunch time when they picked me up to process. After lunch, I went out again, and finally got both models going satisfactorily. Sifleet and I spent the rest of the day timing the size and frequency of the thermal cycles, and testing our judgment by towing reactions until we felt that we had a good understanding of the air.

I got in over 40 flights this day. However, on retrieving my #2 model on the last flight, the stab was smashed on one side, so I had another evening of repairing until past midnight. The weather forecast showed good weather moving up from Germany!

On the morning of the contest day, the sky was a little hazy, but the wind was down to about 8-10 mph, and the air felt good. At 10:00 o'clock, the starting flare went off and the competitors scheduled to fly in the first period of the first round prepared to tow.

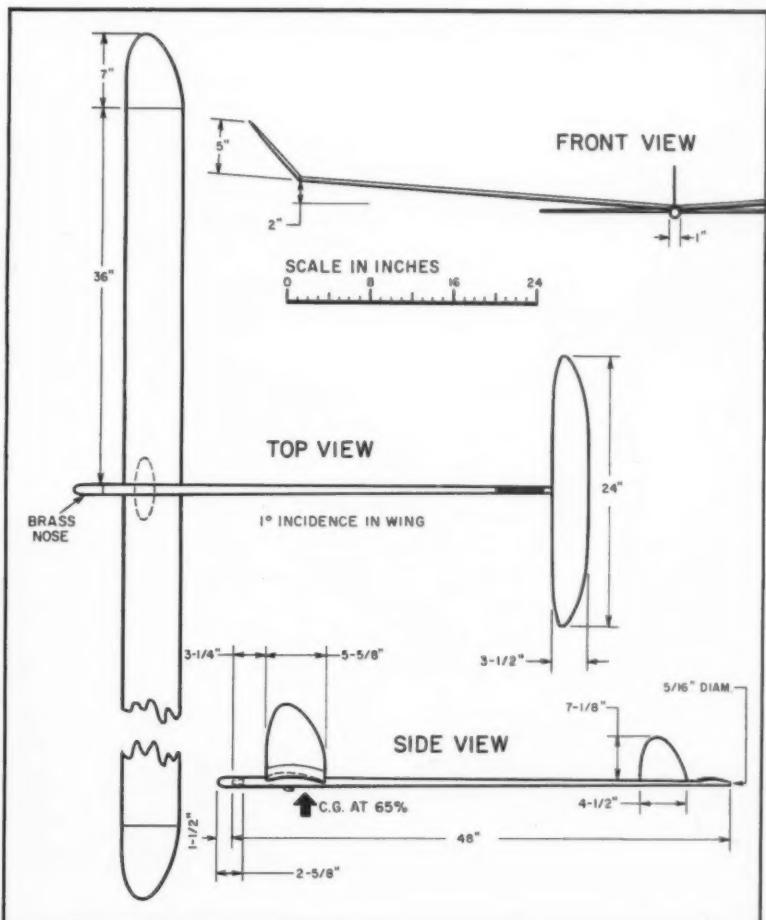
Wiehle got off a good tow, but missed thermal air for a nice flight of 2:34. I towed second, and found some lift for a max. Sifleet, towing third, let his model off to one side for a flight of only 60 seconds. There were 33 maxes this round, which showed the good quality of the air, also



Most consistent flying by Finns with 14 out of 15 maxes. One fly-off man no ship. (Moulton.)



Canadians Tuck, Thompson (with model), Foster. No therm'l tow, stopped Thompson. (Moulton.)



Rus. mgr., Averyonov's ship. Team discipline—Aver. waited 17 mins., 20-min. period. (Park.)



Takkapoa, Finland, five maxes, tripped, fell, the fly-off. Two Finns made fly-off. (Moulton.)



Finnish design: rolled-tube fuselage, original wing-stab sections. Masters in towing. (Park.)

the excellence of the flying, which was at an all-time high. At the end of the round, the scoreboard showed Denmark, Finland, Holland and Sweden with triple maxes, Russia with two, USA with one.

In the second round, Wiehle found some good lift for a beautiful max and dethermalized into the woods. I flew second and got another max. Sifleet still had some trouble, and got a flight of only 77 seconds. There were 30 maxes this round, with only 17 of them being repeaters, however.

The weeding out had already begun. The Finnish team were the only triple repeaters, while the USA, Russia and Sweden each had two maxes this round.

After lunch, the third round got under way. I flew first this round to give Wiehle more time to repair some holes in his covering and got a nice max. Wiehle flew next but didn't connect any lift and got 1:42. Sifleet started showing his good form and put up a nice max. Again, there were 30 maxes in the round. The (Continued on page 43)

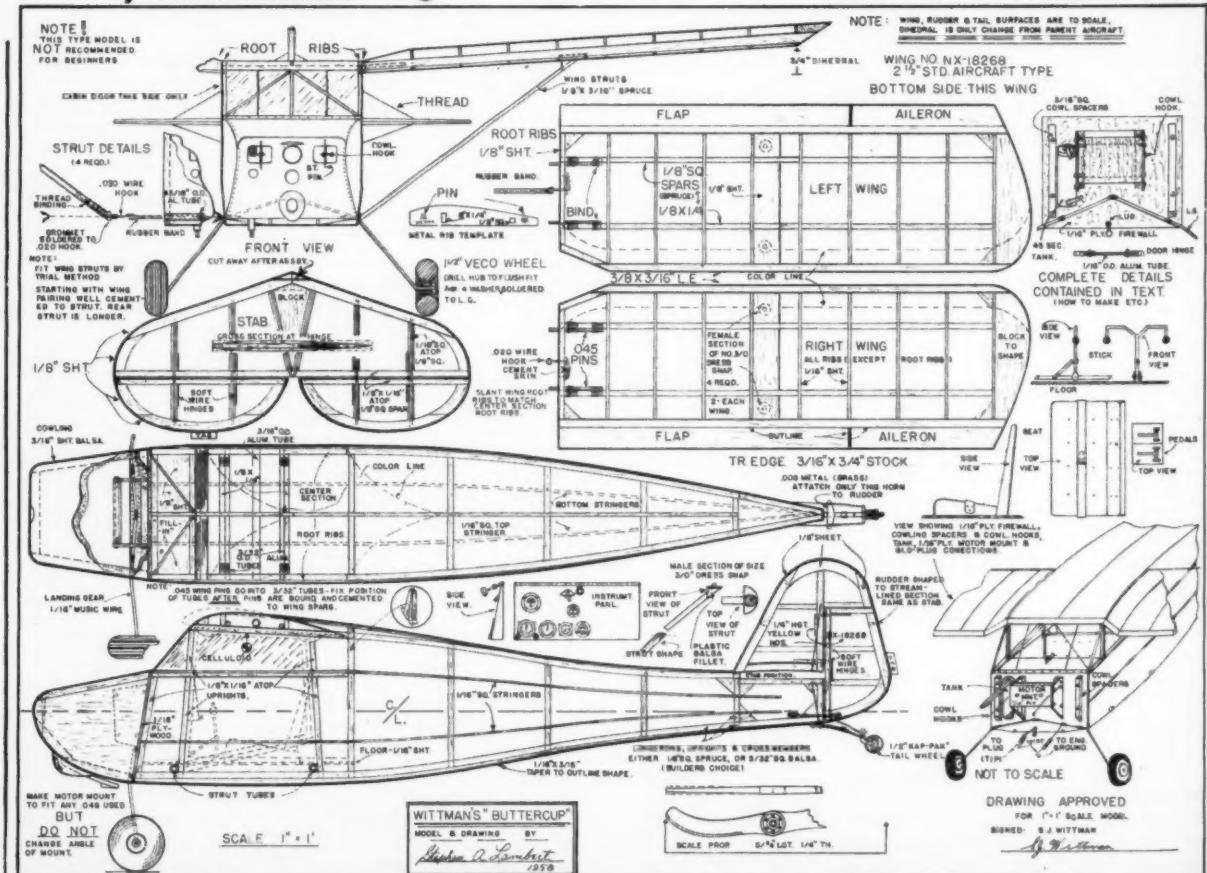
**L**ightplane designers figure Steve Wittman must use black magic to get sensational performance from his home-builts. Try this old favorite on an .049.

# buttercup

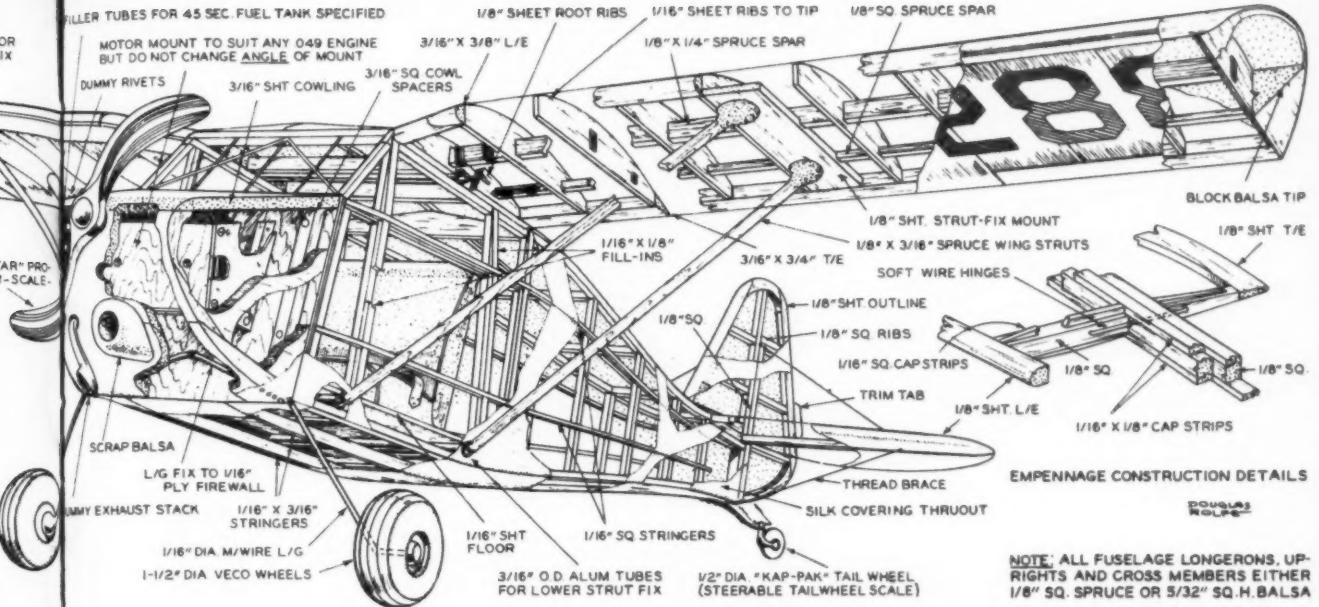


**by STEVE LAMBERT**

**Wittman** is famous for the functional, simple design approach, a happy circumstance for the modelers who find boxy scale jobs hard to find.



**FULL SIZE PLANS AVAILABLE. SEE PAGE 60.**



You can see through this picture by studying Doug Wolfe's clear cutaway drawing above.



Tail wheel, wires, tab, other true-scale jazz.

► "Buttercup" is a two-place utility airplane designed and built by Steve J. Wittman of Oshkosh, Wis. Readers of MAN will recall him as a prolific designer of very successful Goodyear Racers, namely "Buster" and "Bonzo."

Through Mr. and Mrs. Wittman's courtesy and efforts (mainly that of crawling about hangar rafters to get measurements, details and the like) I have been able to gather, over a period of three years, authentic information to present herewith an exact scale model of "Buttercup," as witnessed by Mr. Wittman's signature in the lower right-hand corner of the drawing.

In order to eliminate "hassles" with scale judges at contests, the original penciled drawing was sent to Mr. Wittman for his approval. The necessary changes were made and now appear in the drawing. A word of thanks also goes to Cal Smith for his original sketches of "Buttercup" which he was kind enough to lend me for double-checking.

This is a one-inch to the foot flying-scale model and its construction is conventional and straightforward.

Start by making a metal template of the full size wing rib as shown on the plan, then cut and sand to shape (pinned together as a unit) 20 ribs. Make the spar slots

slightly oversize by using a #11 Xacto blade to cut out the notches; .003 is about the blade thickness and will make a good tight fit on the spars. Wax paper should be used to atop the plans to prevent the cement from sticking to the paper.

Space the ribs correctly on the spars and, using scrap 1/16 inch sheet balsa under the spars, pin the spars to the drawing over a flat board. Pin the 3/16 x 1/8 shaped trailing edge in place after applying cement to the rib ends. The leading edge is done in a like manner. The wing tip is shaped from a soft balsa block. The .045 pins are bound to the spars after first bending a small "L" in each pin end and pushing it into the spar. The .020 wire hook on the root rib goes into the 3/16 inch diameter aluminum tube which is cemented to the fuselage ends, flush with the root rib. A rubber band is passed through this tube and attached to each hook. These hooks hold the wing in place during flight but will allow the wings to pull loose in case of a crack-up or rough landing.

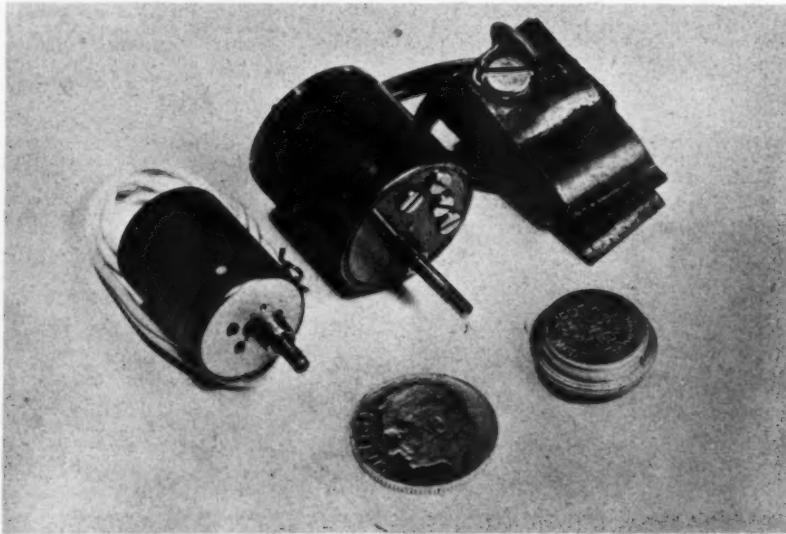
Notch the top of the 1/8 sheet wing strut brace 1/16 inch deep where it meets the spars and cement in place. Sand this to the rib shape and insert the female section of a #3/0 dress snap as marked on (Continued on page 54)

To gas, jet, rubber, add  
this new power source—  
flip the switch and fly!



Fred Millitky who developed precision-made German motor after 15 years experimentation.

The 14-inch prop—width 1½—is a blur at 700 rpm; model disappeared overhead in 5 mins.

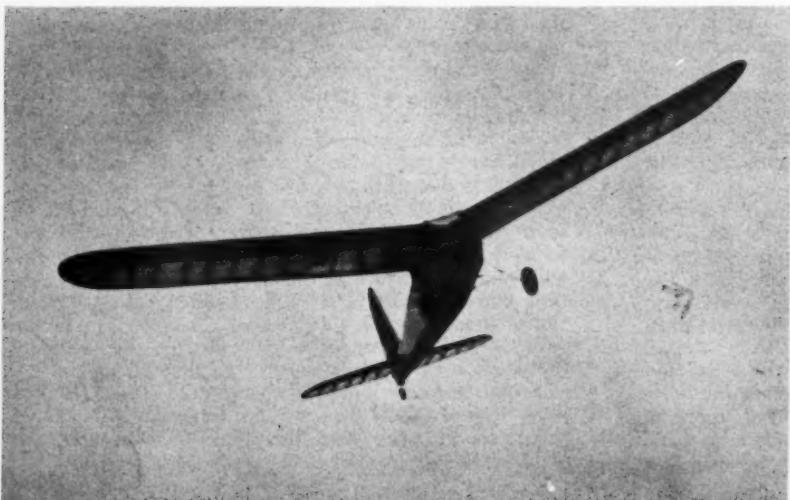


Two of the three sizes of German motors. Ones shown could not be stalled by hand when

powered by tiny battery at right. Each motor available in three different reduction gear ratios.

Just a few years ago, Taplin's all electric RC job was a sensation. Span 90 inches, weight 8

lbs. It worked but rather impractical—evident that much further progress will soon be seen.



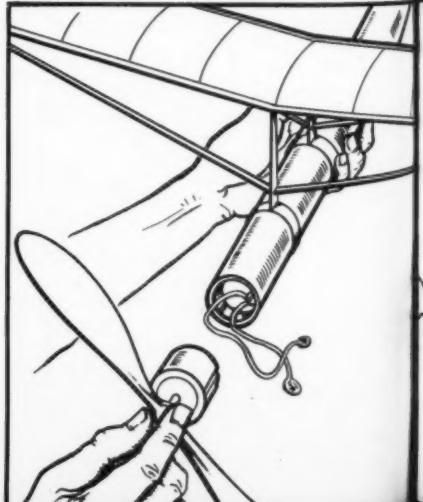
*Lightweight, efficient, motors and batteries can power free-flight craft.*

by DORIS and ED YULKE

► To the roar of the gas engine, the hiss of Jetex, the whir of rubber, add a new sound—the hum of electric motor. Designers of two nations have licked the old bugaboos of too much weight and too little power. Electric motors now available are capable of flying out of sight, sport and beginner models of about twice the size of an AJ Hornet rubber job!

Soon you will see modelers slipping

Below—How the motor—as a nose plug—removes from one of Millitky's neat little jobs.



tiny dime-sized mercury or nicad batteries, even pencils, into clips in models—models that will fly out of sight if they're not equipped with timers to cut the power! They're being imported now from Germany and Japan.

Fred Miltky of the German Graupner firm developed motors and models that have flown out of sight in 5 minutes as far back as March 1957. Less than the diameter of a quarter, these motors are about an inch long, weigh less than an ounce and a half, yet, geared down to about 700 rpm, swing a 1 1/4" prop with a blade width of about 1 1/8" and all this on a battery the size of a dime and about four times the thickness.

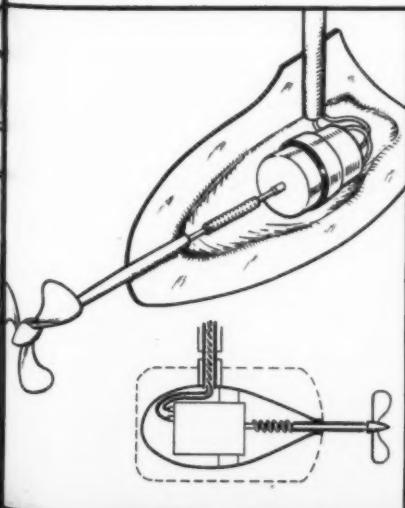
As Mr. Miltky was making about 250 flights with his conventional models, he also demonstrated that the "Gnom" motor would lift helicopter-type models as well.

Where do we get the batteries? The answer is simple—at the same place we get hearing-aid batteries (22½v and 30v) for radio receivers! Hearing aid supply stores, most radio parts supply houses, now have in stock mercury and nicad button-type batteries for hearing aids and tiny pocket-sized transistorized radios. They range in different sizes and voltages from about 1.4 volts to 9 volts, cost from 75¢ to \$1.50 each and the total number of dethermalized (in sight) flights of about 5 minutes duration have not been determined at this writing. Preliminary checks indicate that you'll get many more flights per dollar than with a can of glo-fuel.

In a recent letter to MAN Fred Miltky stated that the new motors should cost about the same as an equivalent Diesel motor. Plans are afoot to import the motors to this country from Germany.

Actually, these motors are not so startling to people in missile-research and the like. Tiny, unbelievably effi-

**Small size of the German motor lends to compact installation inside the rudder of boat.**



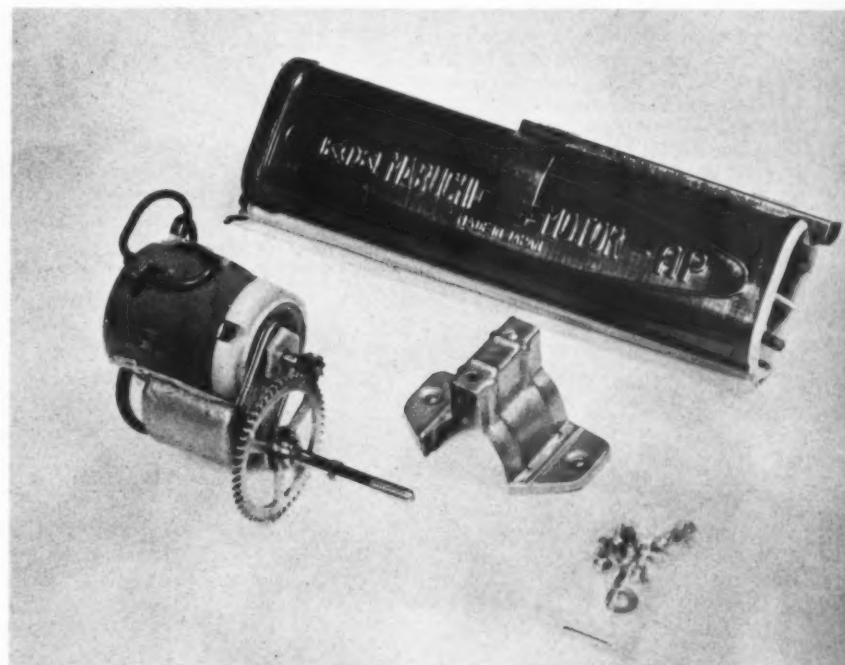
**Japanese electric motor, accessories. Spring-loaded large gear shaft disengages small gear**

cient motors have been made before and are in use today, here in this country. The only difference is that Fred has taken the same high-efficiency features such as silver alloy commutator segments and gold-wire brushes for maximum current transfer (lowest moving-contact resistance) and has developed motors of the right size and weight for model airplanes. The gearing of 59:1, 15:1 and 21:1 in the three motors Graupner plans to produce for models allows these tiny motors to run at their best rpm, while giving a shaft rpm efficient for propellers.

The fact that the Graupner motors

**Installation of Japanese electric motor, a battery holder case, in fair-sized ROG type model**

**made as kit in that country. Aimed more for mass market, less costly than the German unit.**



**in glide, gives freewheeling action to propeller. Both German, Jap motors use a fuse timer.**

will also run at one-half volt, make them an outstanding possibility for transistorized pulse actuators that would not require relays in the receiver! The 59:1 gear ratio motor is being made with that thought in mind. Previous issues of MAN have shown in the Radio Control News column, circuits for transistorized switching units for running pulse servos. Here is a tiny electric motor that could be a servo in itself. Solder a crank arm to the shaft, hook it to the rudder or elevator and let a couple of 2N188 transistors do the job of switching current that formerly took four contacts on (Continued on page 58)

*Superfast rat racers are fine for 35-lap heat but rugged, reliable job the answer for pit-stop grind.*

# Altair



by DON BARTLETT

● Many rat racers you may see go like blazes but don't consistently win, or even finish. Such ships are fine and dandy for the first 35-lap heat where no pit stops are involved, where speed gets you a place, for the other heats to follow. But the racy missile just doesn't do the job in the second and third heats. The fellows that have had this experience know what I mean. A conventional rugged ship with good cooling, exposed components, is needed.

Also, the rat racer that's too fast makes hazardous flying for yourself and others in the circle with you. Possibly,



Altair won't fall like a rock in a stall, says designer Bartlett. Stands up to collisions and

line tangling and a good fuel system insures a finish without trouble from go-slow overheating.



The Bartlett's starting up old No. 5. Don gives interesting rundown on operating techniques. In

35-lap heats, he uses pen-bladder pressure system but recommends regular tank for a long go.

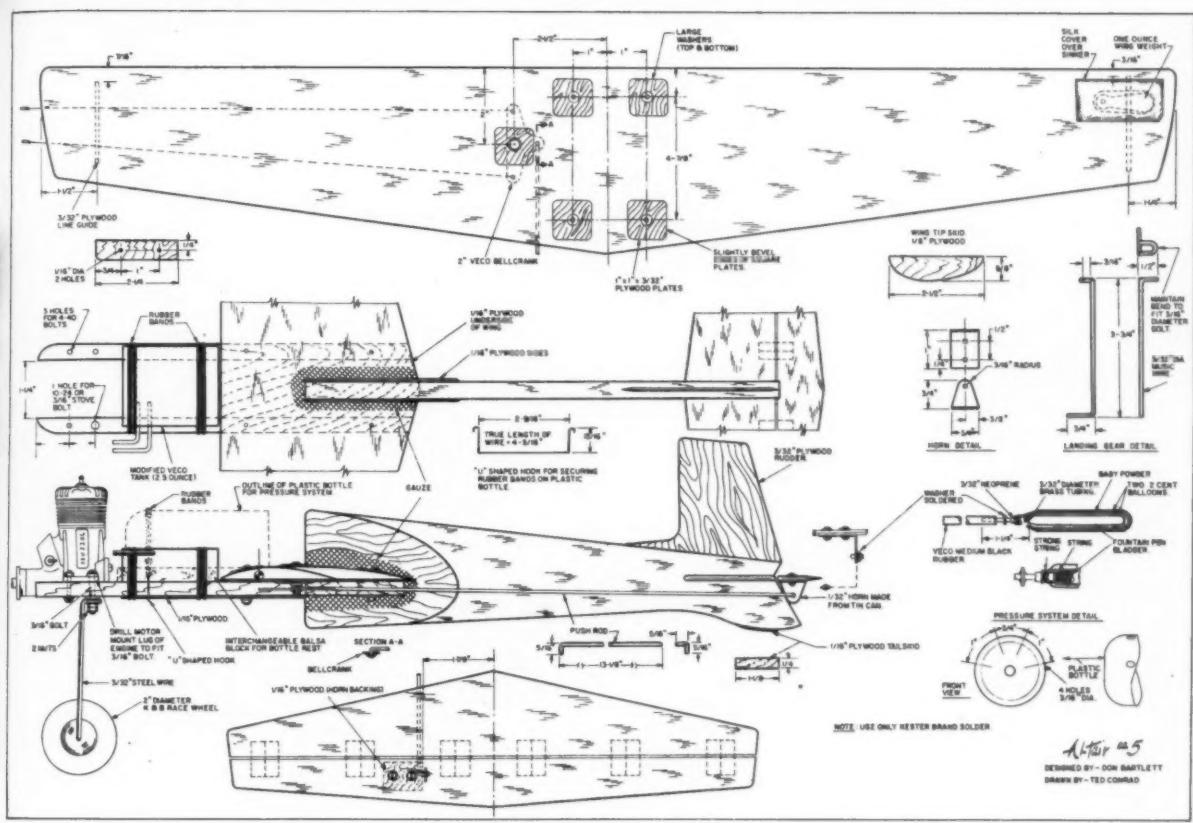
you'll collide on take-off, or tangle and can't get out as easy, as if the ship was a little slower and more floaty. Altair No. 5 is floaty and will save you in a stall, whereas, racy missile types fall like rocks.

I am not against speed. It takes the right amount of speed to win a race. I've attained the essential amount of speed, employing the long-used pen-bladder pressure system used for many years in straight speed events. Old, but reliable.

The usual pressure systems work fine, if hooked up properly, and operated carefully. Pressure gives the extra speed and prevents rpm reduction in bunched-up spots, where you just can't seem to break away from the pack. All pressure systems are excellent for the first heat only—unless you have a pit man that is excellent on starting pressure hookups! For long runs use some standard tank.

So, Altair was designed with versatility in mind, not speed alone. It stands up to collisions and line tangling and can finish through heats without overheating.

**Wing:** From a piece of  $36 \times 6 \times \frac{3}{8}$ " sheet balsa, cut out wing to  $30 \times 4 \frac{1}{2} \times \frac{3}{8}$ " and sand to airfoil shape shown on side view. (Butt join wood if wide widths not available). Note that, where



**FULL SIZE PLANS AVAILABLE. SEE PAGE 60.**

the motor mounts bolt to the wing, four  $\frac{3}{32}$  inch thick plywood plates, each one inch square, must be cemented to the balsa wing. The underside of the wing at the center section is faced with  $\frac{1}{16}$  thick plywood (see top view); to be added later. The line guide is  $\frac{3}{32}$  ply. Slot the wing slightly for the guide and cement in place. Drill the plywood bolt plates with a No. 43 bit and bellcrank with a No. 29 bit.

**Fuselage:** Cut out and sand the fuselage to outline only, from a balsa sheet

Standard clunk tank with back cut out makes ideal container for pen bladder. Rubber-band loaded spring clothespin pinches line.

13 x  $\frac{1}{2}$  x 3". Cut and sand rudder from 3/32 plywood, then cut and sand plywood plates and tailskid from 1/16 material. After side plates are cemented, and have dried, in place, cut out slots for rudder, wing, and stabilizer. Fuselage wood corners may now be rounded.

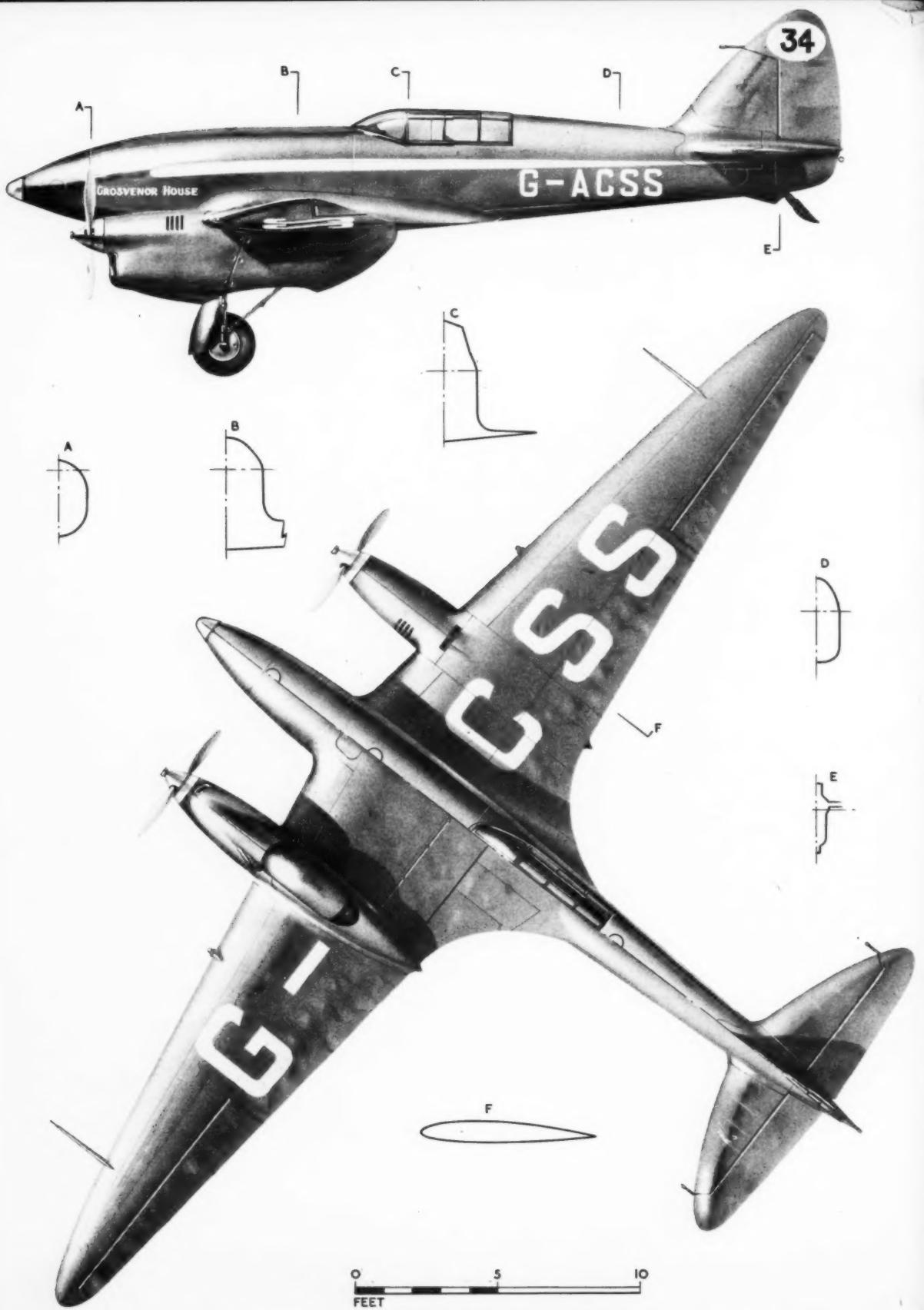
**Stabilizer:** Cut and sand stab from  $\frac{1}{8}$  inch sheet balsa, then slice stab to form elevator. Next apply silk, using cement, to the top and bottom of stab and elevator. You can't put your cloth hinges on now or wait until you have as-

sembled ship. Note glued and bolted (2/56) horn backing of 1/16 plywood.

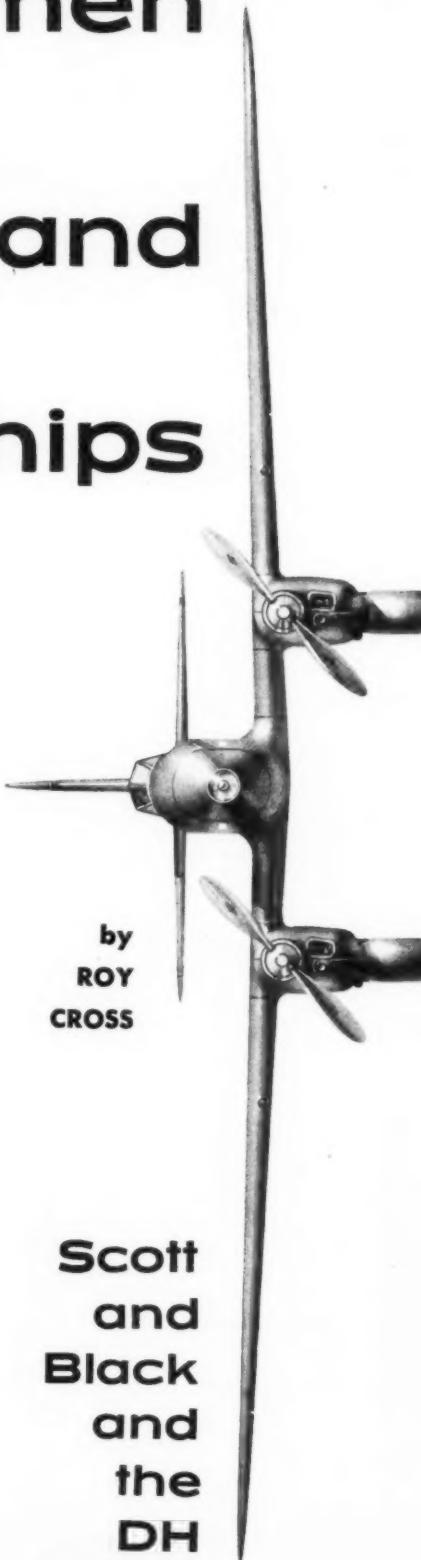
**Motor Mounts:** First cut and sand wing-to-motor-mount brace from plywood (3/32 x 2% x 4%). Then glue to underside of wing. Use Elmers Glue-All and clamps. This treatment will prevent cracking of the wing.

While this part is drying, cut and sand the plywood brace for the motor mounts. Cut from  $1/16 \times 2-5/16 \times 4\frac{3}{8}$ " then lay it aside. Cut the two motor mounts from (Continued on page 56)





# men and ships



**Scott  
and  
Black  
and  
the  
DH  
Comet**



Worn from 4½ day dash, C. W. A. Scott, left, T. Campbell Black, at finish. Beat KLM airline DC-2; Roscoe Turner, Clyde Pangborn, Boeing 247. (Wide World)

*Winner of a never-to-be-forgotten air race from England to Australia in 1934, DH-88 did about 12,000 mi. in 71 hrs.*

► Design-for-a-purpose personified, that was the original D.H. 88 Comet. No extraneous considerations were allowed to mar the machine's ideal conception as a long-distance high speed racer. The fuselage was a beautifully streamlined fuel and crew container, the big gas tanks being carried over the wing near to the CG, relegating the crew to a position farther aft than was strictly best from the visibility standpoint. Engines were comparatively low in power to keep down fuel consumption—two were needed to give the speed and reliability/safety factor.

The wing was thin, the landing gear retractable, two-position air-screws were fitted and so were flaps. Every modern device was used, in fact, to get at least 220 mph at low consumption over a 2500-mile-plus range.

Sole purpose of the design was to win the (Continued on page 46)

Below—Sole, surviving Comet, reconditioned by deHavilland but differing in detail from 1934 machine. Grosvenor House, the winning Comet, bottom.





Author about to launch the Sky-Scraper at the Eastern Semi-finals, Frederick, Md. Not at top.

on either of the five-flight days, ship did run up winning 28:46 total on required ten flights.



National identification letters not yet added in this shot of ship and designer at Frederick.

► The Sky-Scraper Wakefield is one of those "quickies" that had about a year of thought and sketching before razor blade ever touched balsa. Then the original was built in just seven days of spare time—a weekend and five evenings—and yet its brief contest record has been outstanding.

In the East Coast Semi-Final, for which it was built, it totaled 28 min. 46 sec. in 10 flights to place on the U.S. team. At Brienne le Chateau, site of the '59 Wakefield meet, the model turned in five straight maxes, then 4 min. 16 sec. for second place in the seven-man flyoff.

In addition to being simple to build, despite its streamlined shape, the Sky-Scraper also proved simple to adjust and fly. Initial trimming took one three-hour session and it has never showed any dangerous tendencies at any time.

Start building by cutting a 30-inch length of 1/16 x 4 inch medium "A" grain sheet for the body blank. Apply two coats of clear dope to the side that will be the inside to prevent it from soaking up rubber lube. When dry, soak the blank in hot water and form it around a 1 1/4-inch O.D. metal tube, holding it in place with a cloth ribbon.

When thoroughly dry, remove it from the form and cement the seam, being careful to keep it straight. Cut this to 26 inches and save the 4-inch tube. End formers should be laminated from

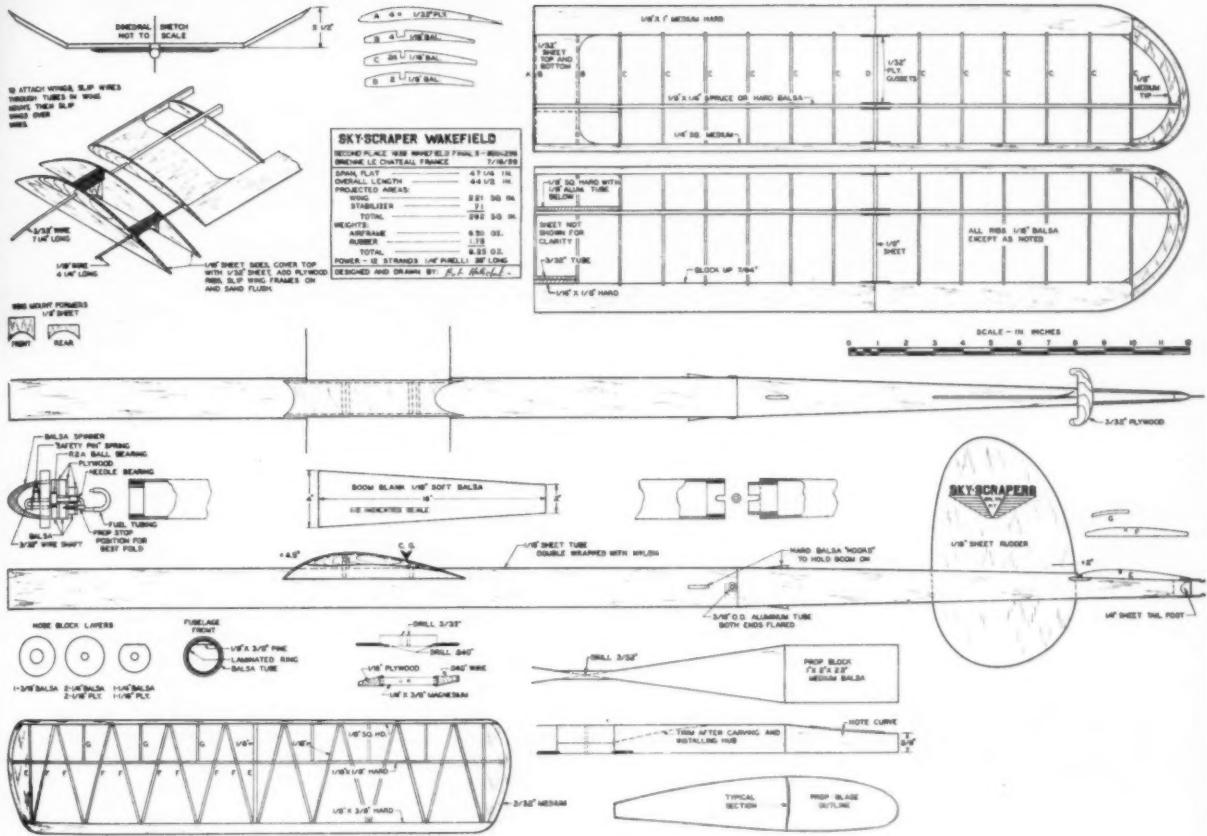


Kothe holding as Hatschek waits to wind at the finals in France. Bilgri, right. Rear winding.

*Simple to build, adjust, and fly, as Wakefields go, streamlined job tied for first in World Championships, then placed second in the seven-man flyoff.*

Russians showed keen interest in the USA models. Ivannikov, jet record holder, 'Scraper.





1/32-inch or thinner balsa by soaking and wrapping on a 1½-inch diameter form. Wrap it to an O.D. (outside diameter) that just fits inside the motor tube and, when dry, cement them in with several coats.

Cover the motor tube with a 2-inch band of nylon spiraled around it. Then apply a second 2-inch nylon strip over the first, making sure that seams do not coincide. This performs a "barrel hoop" function and absolutely prevents damage to the tube from a broken motor.

Tail boom is made similarly except that a tapered blank is cut from 1/16-inch sheet. You can either wrap this on a 1-inch pipe and "worry" it into its final form with pins and masking tape (as I did in my haste) or you can carve a tapered form from balsa or hardwood.

Now cut a 1-inch length from the 4-inch leftover tube and slice about ¼-inch from its circumference. Trim this until it slips easily but fairly snugly into the rear motor tube former, then cement the seam. Now cut a ¾-inch length of tube and fit it around the 1-inch length and cement it firmly at one end. When this dries, sand the outside until it just fits into the front of the tail boom. Then cement it in place. Needless to say, both the front of the boom and the rear of the motor tube should have been sanded perfectly flat and square prior to this step.

Now cut out the rudder, sand it to section, slot the boom carefully on top and bottom, and cement the rudder in. The stabilizer saddle can also be made and securely installed at this time.

Do not tackle the wing mount yet.

First build the two wing halves, which are perfectly normal except for the aluminum tubes. These should be securely installed and lined up per-

fectly. Front tube is ½-inch O.D. and the rear one 3/32-inch. Make certain that 3/32-inch wire will slip easily into the front one and 1/16-inch wire into the rear one. Front tubes are installed by binding with thread to a piece of ¼ square which is then cemented to the spar. Rear tubes are bound to the narrow side of a piece of ¼ x 1/16 inch balsa which (*Continued on page 40*)

Bilgri, Hatzschek, Kothe and Alphonse Penaud

Cup won by USA, total 44:16, possible 45:00.



# radio



New sealed nickel-cadmium batteries by Burgess. Batteries rechargeable, also, in 6, 9.6 volts.

# control



More Burgess nicads. At press time, unknown if sintered plate type allowing heaviest drains.

# news

by EDWARD J. LORENZ

**From far and wide reports are really hitting a spot!**



Very nice, built-up frame, multi-channel ship by Viido Kotli, Tallinn, Estonia, USSR. Model-

ing pictures from behind "Iron Curtain," even from China, indicate progress all categories.

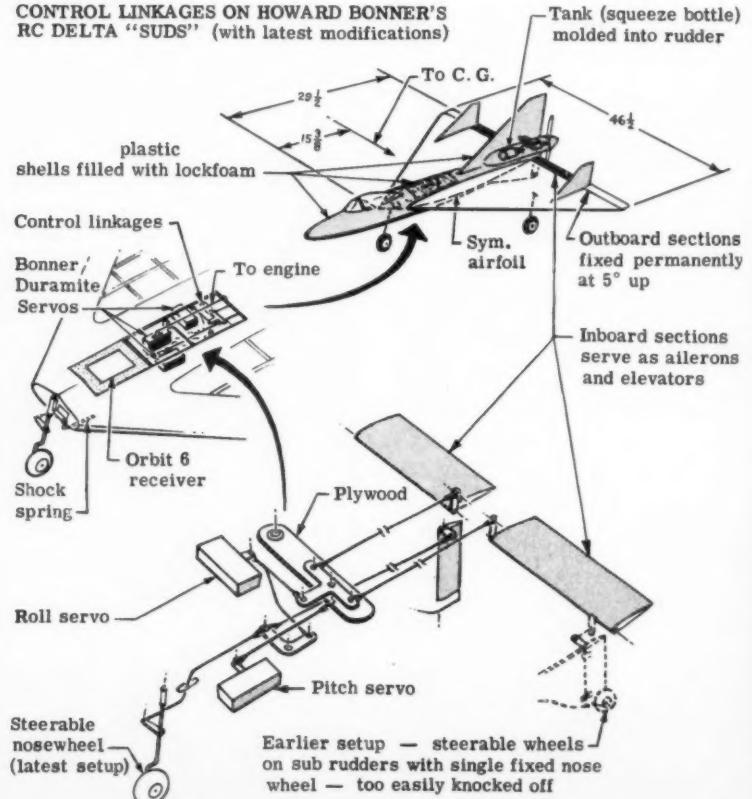
► George Buso, Poughkeepsie, N.Y., can attest to the high capacity of sintered plate nickel-cadmium cells. One of the servos in his Smog Hog hung up and the entire capacity of the two cells was drained into the servo motor. The motor got so hot the plastic housing melted. Heat traveled through the armature winding to the shaft to the bearings and there he was. You have a high power capacity with these or similar cells, so make sure everything functions properly.

John Mirmak of the Central Jersey

RC Club has applied a phenomena discussed in the early days of crystal controlled transmitters. If a 12 to 24 in. length of wire is connected to one prong of a crystal socket and a crystal inserted, the combination can serve as a means of tuning super-regen receivers. Bring the crystal antenna to within about six inches of the receiver antenna and then tune the receiver. A super-regen receiver generates a wide range of RF signals, one of which is the crystal frequency. This signal is then reflected back through the crystal antenna and trig-

## DETAILS by F. DAZEY

CONTROL LINKAGES ON HOWARD BONNER'S RC DELTA "SDS" (with latest modifications)





To celebrate 350th anniversary finding Hudson River, RC Clermont model made crossing 40 mins.



Endurance version of British Radio Queen by La Mar Kemp, Dallas. Single-channel Babcock with

a Tomosser servo. Fox 35 for power, will use superhet receiver. Economy fuel is necessary.

gers the receiver. John states he has coupled one pin of the crystal directly to the receiver antenna with better results. After tuning a gas-tuber in this manner, he found his ground range to be more than 700 feet. Caution, use the same crystal for checking the receiver as you will use for transmitting. We checked the transistorized Babcock Magic Carpet receiver at a distance of 12 in., using a 20 in. length of wire on the crystal. Tuning of the receiver was sharp and later gave a good ground range of over 300 feet.

Several articles and editorials have been written within the past six months dealing with the complexity of electronic circuitry. It is often essential that circuits be on the complex side. However, to make them more so just to achieve sophistication invites unreliability. We merely are closing a relay, transmitting an RF signal or modulating with AC. In most cases there is nothing really critical about phasing, time delays etc. Today, everyone wants to know "what's new." Basically, there's not much new in RC. The majority of reliable pieces of equipment are relatively simple and use no trick circuitry. Over 90% of all "new" circuits or gadgets are merely improvements used in the early days of radio.

Figure 1 may answer many inquiries as to how to hook up the Kraft modulator to our twin-tube MOPA transmitter. The same method of feed-in can be used with the Aristocraft modulator and this particular system has been thoroughly field tested in our group. It is best to keep the modulator supply to 87½ volts, with 90 volts on the oscillator and 135v on the final amplifier. Modulation is in excess of 95%.

Another quickie to prove that simplicity is the keynote of design. Figure 2 shows how to use up old wire coat hangers to keep your model from blowing away. Mr. Ernest B. Knorra, 500 Reid St., Fairfield, Conn. dreamed this one up! and it should be valuable at breezy contests or other flying sessions.

Awhile back we mentioned the use of 1½ volt cells containing a plate on the negative end of the cell, held in place by the wrapper. This refers to the common carbon-zinc flashlight cells. Several equipment manufacturers have now stated that certain brands of cells are not recommended for RC use because of the possibility of high ohmic contact. We favor Burgess cells for model work since the 1½ volt cells have a one piece negative can. The B supply batteries, such as the familiar U-15, have their cells connected with a conductive wax which assures good contact in hot or cold weather and it is relatively immune to vibration and shock.

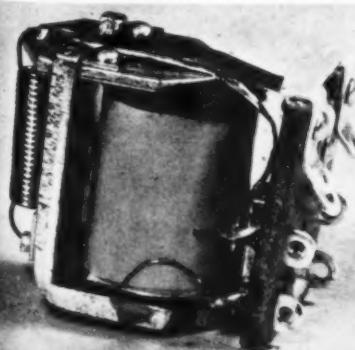
A word of caution on the charging of certain type nickel-cadmium cells. Some of the higher capacity types have a vent screw in the top. This must always be removed during the charge cycle otherwise normal gassing will rupture the case. This condition occurs during the end of the charge cycle and is normal. Otherwise, maintain the correct charging rate on the sealed cells thus keeping the gassing at a low or non-existent level. We tried overcharging a CG VO-250 cell and bulged the case and ruptured the seal.

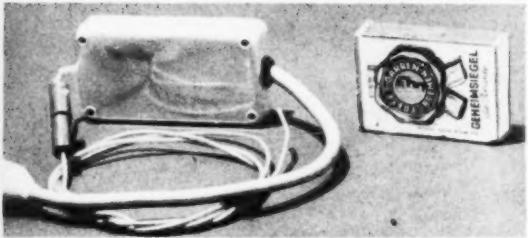
From the DC/RC Newsletter comes Figure 3, suggested by Mavnard Hill, 309 Princeton Drive, Pittsburgh, Pa. Used for proto take-offs, the spring produces enough friction on the wheel when the engine is dropped to low speed to bring the plane to a stop. The main feature of this design is the adjustable tension that can be applied. Although it would be possible to make this setup using a wheel collar alone, the threaded portion of the axle provides finer adjustment and a better lock. Prior to threading the  $\frac{1}{8}$ " piano wire, it is suggested that the end of the axle be heated to a dull red and then cooled slowly. DO NOT allow the bend to become soft. We suggest using a sliced potato to cover the portion of the axle not to be softened and then applying a torch to the very tip of the axle.

With a greater inflow of Japanese made components for electronic use into this country, the RC builder might assume he was getting a bargain price-wise while on the other hand he might have some question as to the reliability of such parts. We have seen quite a few

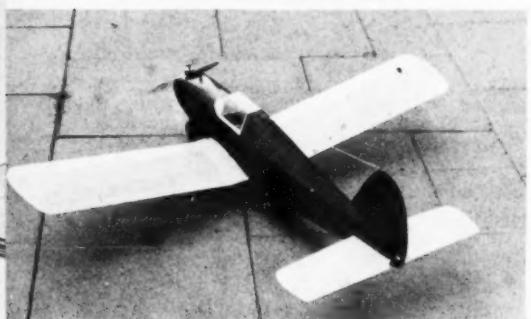


Gyro charger for 110v source. Max charge is 2 amps; knob control varies the charging rates. Below—Deans, relay with a weight of 9½ grams.





German Teko receiver, used by Harald Kurth.  
The weight is 56 grams. Tone, 400-450, 27.12 mc.



Kurth's low wing with 1.5 cc Taifun-Hurricane  
engine. Plan of interesting little ship on right.

Below—With Teko transmitter. (Teko also has an  
8-channel rig.) Two tubes, transistor, tone, CW.



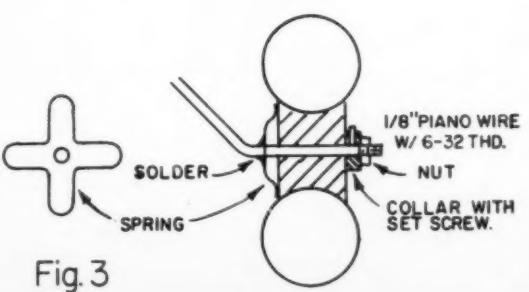
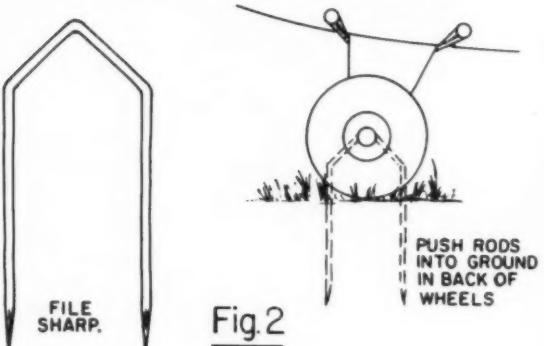
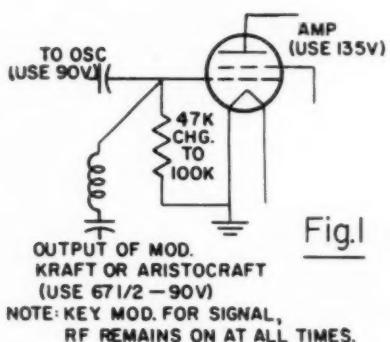
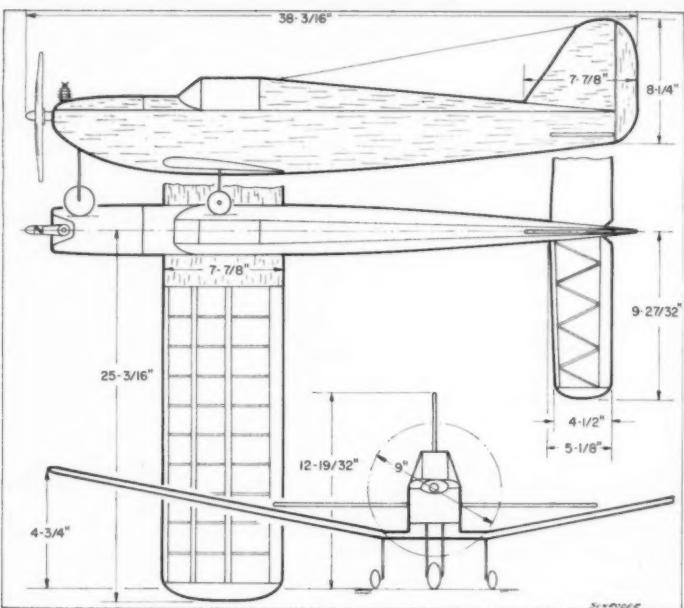
#### RADIO CONTROL NEWS . . . Continued

Jap parts and assemblies and for the most part they are equal to or better than what can be purchased by the average RC builder. Many large concerns, outside of the model field, are importing such items and they are of excellent quality. Many new products have arisen through the efforts of Japanese research and while we are not emphasizing Jap products, we feel that, if use can be made of certain parts that are not readily available in this country, why not use them.

• • •

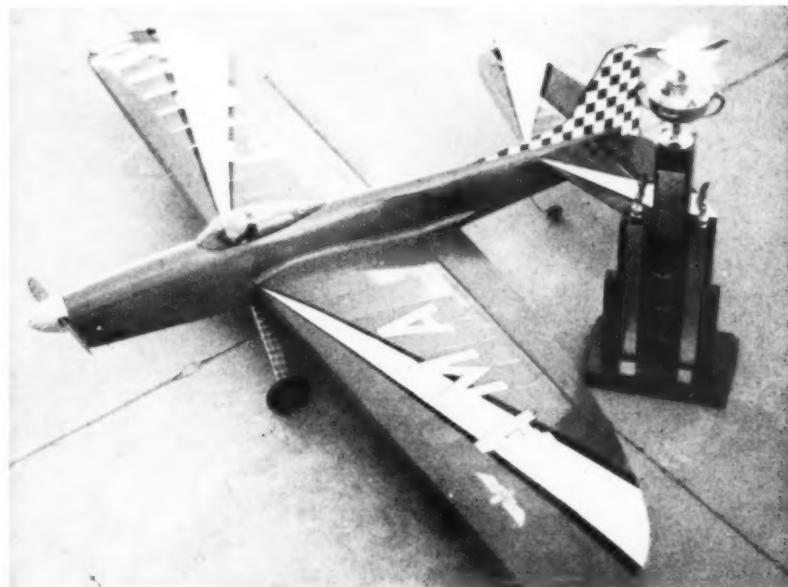
#### CLUB NEWS

Photo shows the 68 in. RC'd model of the steamboat Clermont, built by members of the IBM Radio Control and Model Club of Poughkeepsie, N.Y. Built from plans used to construct a full scale replica in 1909, this model participated in the 350th anniversary of the discovery of the Hudson River, the Hudson Champlain Celebration of 1959. Powered by a German built Taycol Supermarine electric motor drawing power from two banks of five cells each of 10 amp ni-cad cells, the model made a crossing of the Hudson River on Labor Day. The 1½ mile crossing was made in 40 minutes. A Babcock 3-channel receiver/transmitter and servo took care of the RC gear to furnish positionable left and right (Continued on page 49)



Something new in stunt, at long last! Flying a modified Thunderbird, Bob Palmer, dean of stunt designers, won the Nationals Open. Gimmick will give a big edge.

# Differential Flaps



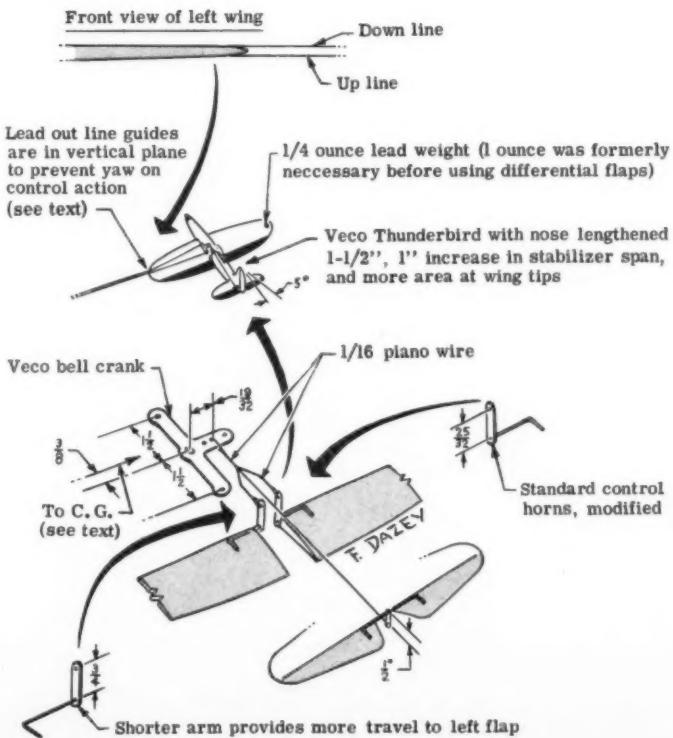
Palmer's stunt winner. Flap action does same thing as one long wing, weighted tip, and vast-

ly improves maneuvers like hourglass, vertical eight which can be done well without the wind.

by BOB PALMER

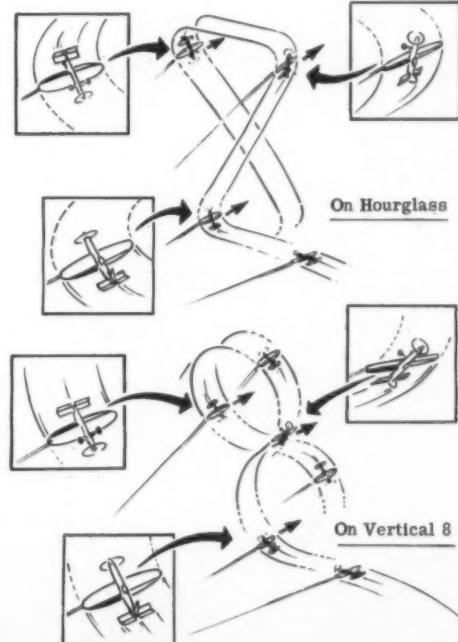
► Competition in Control Line Stunt gets tougher every year as more modelers enter the field and become proficient at the stunt pattern and collecting finish points. With this in mind, I began experimenting with new control setups back in June '58 to arrive at the final arrangement shown in the sketches.

Until now, the biggest problem with a stunt model has been to maintain enough line tension throughout all parts of the stunts. No tension, of course, means no control, and the problem increased when the vertical eight and hourglass stunts were added. As the model rises up, centrifugal force has less effect, and the model tends to sideslip back toward the pilot. To get close-to-perfect stunts, it was previously necessary to fly in a 5 to 10 mph wind and perform the stunts on the downwind side of the circle. This differential flap system solves the problem so well, that now I prefer (Continued on page 36)

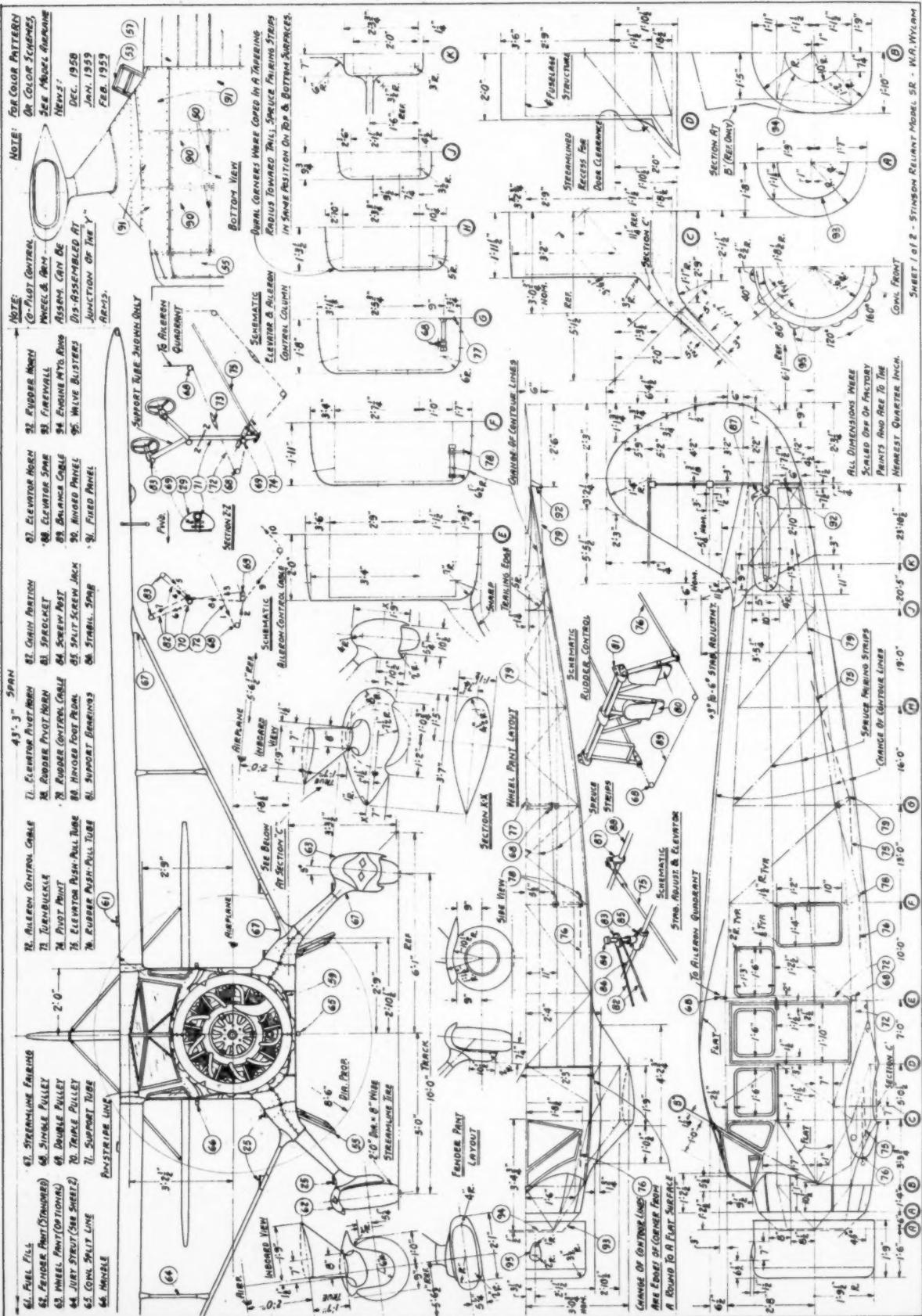


## EFFECT DURING STUNTS

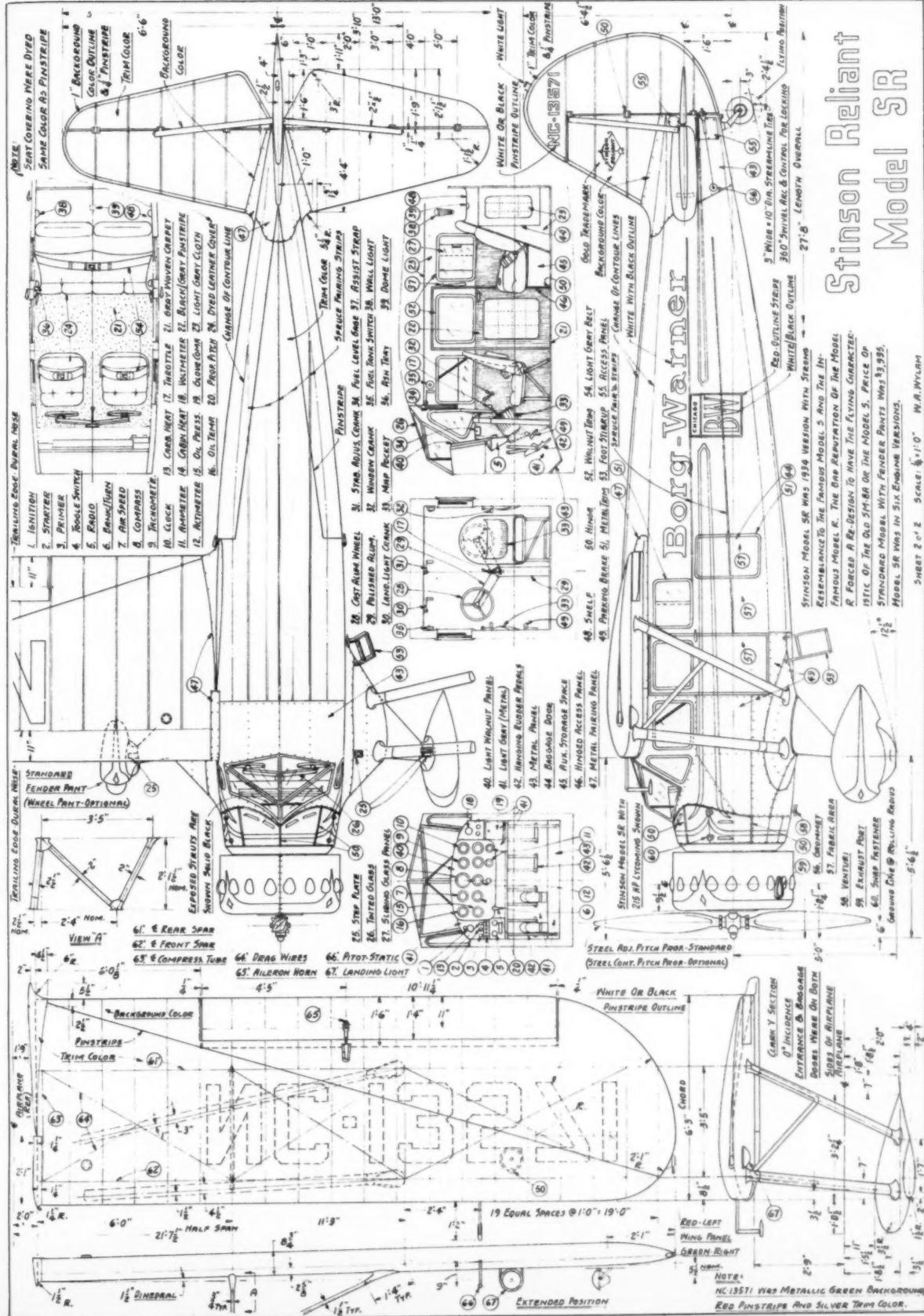
(left flap travels farther to provide slight roll and greater line tension at points where it's most needed)



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**monoplanes.** Plenty to go so collectors, modelers urged to keep file intact.



## **Stinson Reliant Model S**

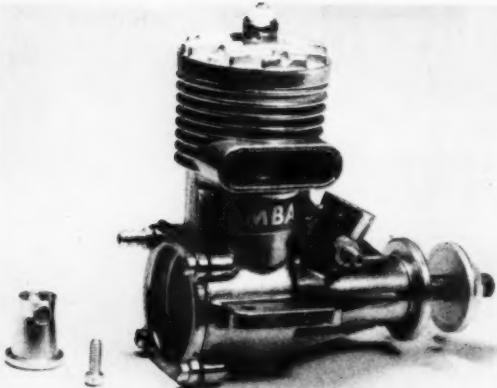
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THE SONG OF THE SPANISH SHIPS

MODEL AIRPLANE NEWS • December, 1959

# Engine Review



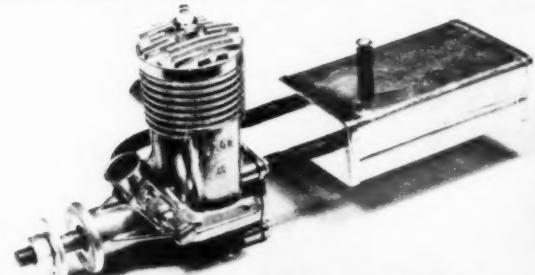
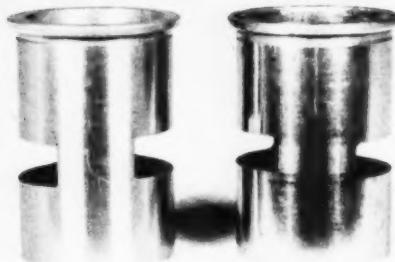
As delivered, the Veco 35C is equipped for pressurized fuel feed. Spare screw and venturi insert also supplied for suction feed.

by P. G. F. CHINN

## Featuring crankcase pressurization for fuel feed, a new, special combat mill.

► The new Veco 35C has been introduced with combat the first consideration. It is intended for operation in conjunction with a pressurized fuel tank; a special outlet nipple, for tapping crankcase pressure, is a standard feature.

The new cylinder liner, at the left, has deeper ports. Low pressure type feed of direct crankcase tap less critical on needle.



Veco T-31C pressure fuel tank. Observe the neat plumbing line-up.

## VECO-35C

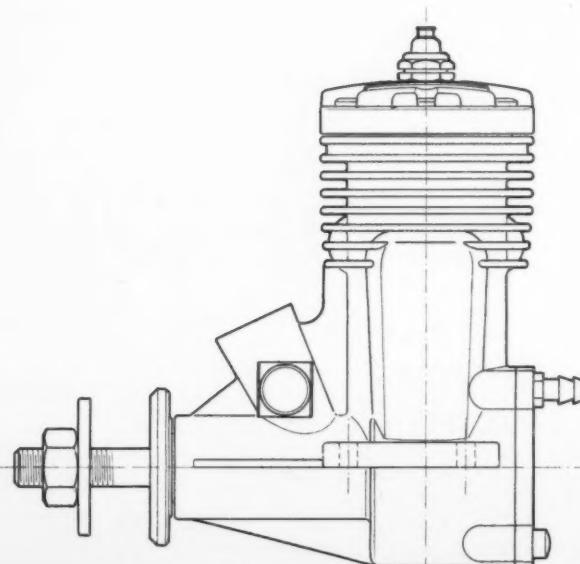
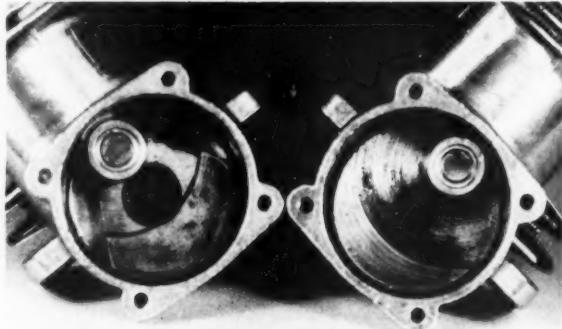
Veco also makes a series of five special pressure type fuel tanks, suitable for use with the 35C and ranging from 2 to 4 oz. capacity. For use with a normal suction feed fuel system, a venturi insert and a spare screw to seal the pressure outlet are supplied with each 35C.

The Veco 35C is a development of the 35 Series 100 model first introduced in 1957 and incorporates a number of modifications and improvements.

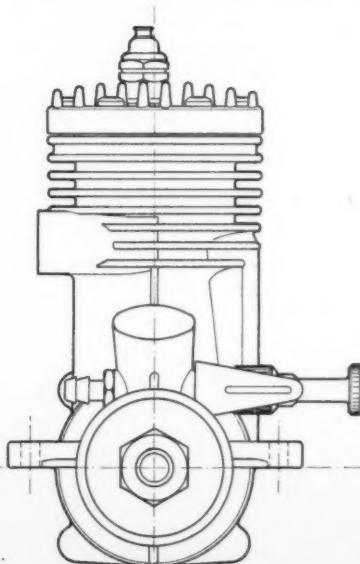
The most important of these is the provision of a new heat-treated, hardened crank-

(Continued on page 30)

On left, the 35C hardened shaft has increased journal, bigger gas passage, and increased counterbalancing. Standard Veco 35, right.



P. G. F. CHINN



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MINEOLA, NEW YORK

## Engine Review

(Continued from page 28)

shaft of revised design. The crankshaft journal is increased from .440 in. to .475 in. dia. and carries a wide annular oil groove 3/16-in. back from the front end. In accordance with current trends, the shaft is more heavily counterweighted, to balance part of the reciprocating weight, as well as rotating mass. This is achieved by using a deeper crescent counterbalance and by cutting away the web flanks either side of the crankpin.

The valve port in the shaft is the same length (13/32 in.), but has been widened to maintain approximately similar induction timing—already quite generous in the standard 35. The rotary valve opens at 35 degrees ABDC and closes 50 degrees ATDC, to give an induction period of approximately 195 degrees of crank rotation. Made possible by the increase in journal diameter, the intake passage through the shaft is now exceptionally large (1/2 in. dia. compared with 5/16 for the standard 35). Despite a more rugged appearance, the new shaft is very slightly lighter.

For the cylinder sleeve, the sintered iron material of the earlier model has been abandoned and the porting modified. Timing remains the same, but the bottom edges of the ports are lowered, smoothing the entry on the bypass side and giving approximately 45 degrees of supplementary air induction below the piston skirt on the exhaust side.

The same crankcase casting is used but the bronze main bearing is bored to a larger size to accommodate the increased shaft diameter. The carburetor throat diameter and the intake aperture through the bearing are 11/32 in. The standard venturi insert, when fitted (for suction feed) reduces choke diameter to 17/64 in.

Like all other current Veco engines, the 35 uses a one-piece casting comprising crankcase, main bearing and cylinder barrel, with drop-in cylinder liner. The latter is located by a flange at the top. The head is suitably recessed to accept the liner flange and an aluminum gasket is used to seal the joint faces. Six Phillips-head screws secure the head to the cylinder barrel. The head carries one of the new Veco Hot-Shot glowplugs, which have porcelain insulation. The plug is of the long-reach type and is offset in the head to the exhaust side. These plugs are available in hot or cold ratings and the latter is fitted as standard to the 35C.

The piston is of conventional design, being of Meehanite, with a straight baffle

filleted at its base. It is relieved .0015 in. for the lower 9/32 in. of the skirt length. The full-floating wrist-pin is of relatively small diameter (5/32 in.), but a wide connecting-rod bearing (1/2 in.) ensures adequate stiffness and resistance to wear.

The aluminum connecting-rod is coupled to the 7/32 in. dia. crankpin via a 9/32 in. o.d. floating bush. This is made necessary by the one-piece design of the body of the engine; after removing the cylinder liner, extraction of the floating bush allows sufficient angular movement of the conrod to allow it to be lifted clear of the crankpin and the entire piston and rod assembly can then be withdrawn through the top of the cylinder barrel.

The pressurization system used by the Veco 35C is of the low-pressure type. Crankcase pressure systems can be divided into two main types. Firstly, there are those in which the induction valve is employed to cut off the pressure outlet during the period of crankcase depression and thus utilize only the positive pressure generated during the crankcase compression period of the cycle. Secondly, there is the type in which the crankcase is tapped direct and the pressure thus obtained is the resultant differential between the alternating positive (compression) and negative (depression) conditions existing in the case. Each type has its own individual advantages, the former (high pressure) type being generally more suited to pure speed applications, while the latter has the merit of simplicity and a less sensitive needle adjustment.

In the Veco, the pressure outlet takes the form of a nipple, drilled through 1/32 in. dia., which is installed in place of the left upper backplate screw, the corresponding crankcase lug being drilled through to break into the bypass passage. A suitable length of fuel tubing is then used to connect the fitting with the pressure inlet on the fuel tank.

For our tests, we used a Veco T-31C 3 oz. pressure tank. This has pressure inlet and delivery pipes conveniently located to line up with the pressure fitting and needle-valve on the 35C engine, as can be seen in our photo. A short length of fuel tube was attached to the tank vent and plugged with a small wood screw as recommended by the manufacturer.

Because fuel is force-fed, the needle-valve needs to be opened only about one, to one-and-one-half turns, for starting. The engine requires to be primed through the exhaust in the usual way for a start from cold. Choking the intake is not effective and port priming will also be found necessary, generally, when restarting the engine after a run. The exception to this latter is

when the motor is stopped by temporarily obstructing the flow of fuel (as with a shut-off valve or by pinching the delivery line); on opening the fuel line again the engine can then be restarted immediately.

It is necessary to remember, however, when stopping the engine with the tank only partially emptied, that, since the tank also acts as a pressure reservoir, the supply of fuel must either be cut off positively or the tank pressure released, otherwise there is a danger of the engine becoming flooded, if re-starting is delayed. It is also desirable when re-filling the tank to remove the delivery line from the engine, as well as the tank vent plug, in order to prevent fuel being forced into the engine via the pressure line. Holding up the nose of the model, when re-fuelling, is an additional safeguard here.

Provided these simple rules are remembered, no difficulties will be encountered. The 35C starts and handles very well—in fact our 35C was superior in this respect, notwithstanding its hotter performance, to our earlier standard 35.

Prior to performance tests, our 35C was given a careful break-in totalling some six hours duration. At the conclusion of this period, the engine was nicely free and held a smooth continuous two-cycle. The following horsepower figures were then obtained.

|        |            |             |
|--------|------------|-------------|
| At     | 9,000 rpm. | — .463 bhp. |
| 10,000 | "          | .512 "      |
| 11,000 | "          | .551 "      |
| 12,000 | "          | .582 "      |
| 13,000 | "          | .605 "      |
| 14,000 | "          | .615 "      |
| 15,000 | "          | .617 "      |
| 16,000 | "          | .610 "      |

These figures were recorded on a fuel of medium-low nitromethane content and were a full 10 percent better than those obtained from the standard 35 under similar conditions. The manufacturer rates the 35C at a nominal .65 horsepower and it is clear that this figure can be reached, or exceeded, on a fuel of high nitro content.

### Summary of Data

Type: Loop-scavenged two cycle with shaft rotary valve intake.

Weight: 7.2 oz.

Displacement: 0.3495 cu. in.

Bore: 0.784 in. Stroke: 0.725 in.

Stroke/bore Ratio: 0.923:1

Compression Ratio: 8:1

Specific Output (as tested): 1.76 bhp/cu. in.

Power/Weight Ratio (as tested): 1.37 bhp/lb.

Manufacturer: Veco Products Corporation, 3625 W Pacific Ave., Burbank, California.



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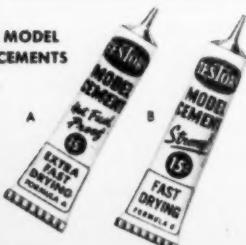
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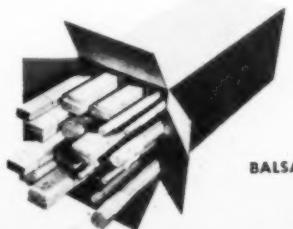
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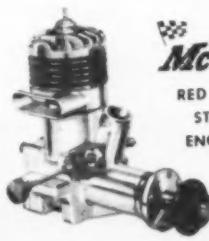
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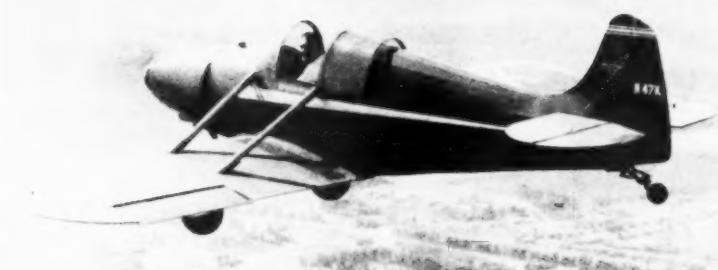
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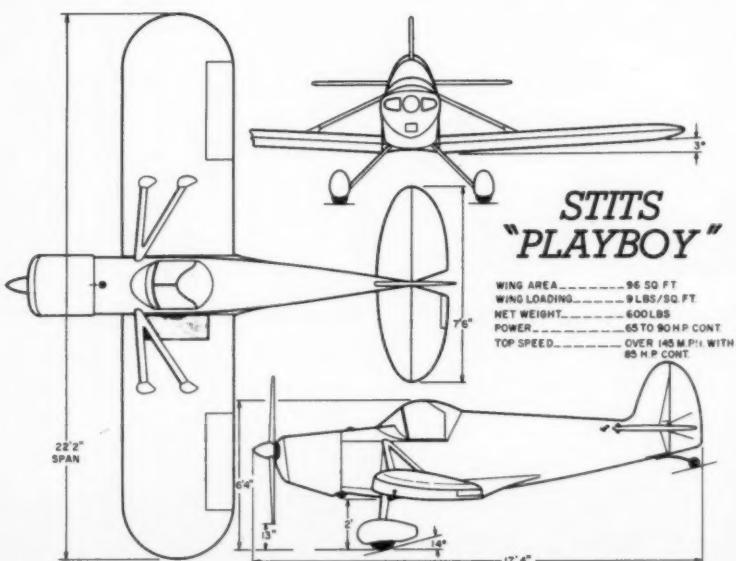
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using Supersonic "100"



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### Differential Flaps

(Continued from page 25)

to fly with no wind. In fact, both the qualifying flight and the winning flight at the Nationals were made in dead-calm weather conditions.

In the past, other West Coast builders and myself have tried various ways to increase line tension, such as adding lead outboard, making the left wing longer, and making the inboard flap larger. All these helped slightly but didn't solve the problem. Making one flap longer would spoil the appearance of the model and is not an aerodynamically clean solution.

With this background to go on, I felt that moving the flaps differentially was worth a try, so I constructed the first test model in July '58. Another refinement (shown in the sketches) was to place the leadout line guides on top of each other at the wing tip. This keeps the model from changing heading because of a sudden pull on one of the lines. The bellcrank pivot is  $\frac{1}{8}$  inch aft of the CG (as shown) and the lines run slightly aft so that the line guides are  $\frac{3}{4}$  inch behind the CG at the wing tip. The first test model has a  $\frac{3}{32}$  inch difference in the length of the flap horns instead of the  $\frac{1}{32}$  inch now used (as shown in the sketches). This model stalled nicely in all round maneuvers (eights, loops, etc.), but the differential flaps made the model jumpy in the abrupt patterns of the square maneuvers.

Another, final model was built with  $\frac{1}{32}$  inch for differential. This seemingly small amount really did the trick. In flying, there is no noticeable effect from the judging standpoint, but the effect is enough to provide a wonderful new feeling of absolute control of the model, especially in overhead work such as with the hourglass.

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The new Spaceman 30 is a rugged, handsome, easy-to-build sport job. Holds a groovy flight attitude, yet reacts quickly and easily to your control handle, including many simple stunts. For extra strength, streamlined plywood doublers go back to middle of the wing. Landing gear has new shock-absorbing mounting. Flown with engines from .14 to .23. Wingspan 30". All die-cut interlocking balsa (no paper covering), formed gear, wheels, screws, aluminum bellcrank, large decal, etc., step-by-step plan. Your dealer has this fine kit for only \$2.95.

## STUNT MAN 23



Want a plane that REALLY STUNTS - tough but light - easy to build? For .1/2A and .09 engines, we bet you'll find the STUNT MAN 23 the best answer in the country! A real hair-raiser, but simple and rugged. Wingspan 23-1/2". All die-cut interlocking balsa (no paper covering), formed gear, rubber wheels, screws, controls, decals, and finest plans. Plus illustrated "Learning How To Stunt!" Complete at your dealer, only \$1.95.



RANGER 30—Die-cut balsa. 30" span, for .020-.049 engine. \$1.95

SPACE JET 21—Die-cut balsa. 21" span, .020-.049 engine. \$1.69

SWORDSMAN 18 Die-cut balsa. 18" span, for .020-.049 engine. \$1.49.



V-2 A BLAZER—Die-cut balsa, tissue. 40" span, for .049 engine. \$2.50



RANGER 28—My "pre-fab plus paper". 28" span, 2 colors \$1.00



SHOESTRING RACER—18" span. All die-cut balsa. Complete \$1.00



SPIRIT OF ST. LOUIS—A miniature duplicate. 21" wingspan \$1.00



RANGER 21—All die-cut balsa parts. 21" span beauty. \$1.00



CESSNA 180—The champion of business liners. 21" span. \$1.00

P.S. If no dealer near you, send me cost of plane plus 25¢ each for postage and packaging. Or send cost of any three and I'll pay the postage.



**CARL GOLDBERG MODELS**

9847 S. CLAREMONT, CHICAGO 43, ILL.

An observer standing in line to get an end view of the stunts can see the model roll slightly to tighten the lines whenever a stunt is started. Theoretically, the system does work against you at certain points, such as starting a dive, but in practice this wasn't noticed, because it is so momentary and it occurs only at higher speeds.

I believe the system is the ticket for getting close to maximum points in the advanced stunts, and the feeling of additional control brings new pleasure to flying. Differential flaps will be used on all my competition stunt airplanes from now on, unless something new and better turns up.

### Foreign Notes

(Continued from page 2)

a new Graupner rudder servo for RC. Motor will turn over 20,000 rpm and there is a choice of reduction gearing: 3.9:1, 15:1 or 59:1. For use as a model power unit, the middle ratio would appear to be the best. According to graphs published by the makers, a torque of 56 centimeter-grammes (.78 in.oz.) is available at a shaft speed of 960 rpm. on this ratio when using 3-volts.

It looks as though we may be seeing some interesting developments if electric power catches on.

JAPAN

The new O.S. 29 and 35 Max series, to be known as the "Custom-X" models in the U.S.A., are nice engines. Compared with the standard Max-II models, these have all new castings and a number of modifications. Again this manufacturer demonstrates his readiness to make frequent changes to keep abreast of the latest developments.

A new crankcase design (the fourth, in fact, since the original Max-I models were introduced in 1954) is featured. This is stronger, has a bigger bypass and wider exhaust stack and a new satin finish. The cylinder has increased cooling-fin area, and a blow-out proof aluminum gasket for improved heat transference. The cylinder head is a new design, which also has increased fin area and an offset plug location. An interesting point here, is that the Multispeed RC version uses an entirely different head with a bar type plug offset directly over the piston baffle and revised contours to modify the combustion chamber shape.

The hardened crankshaft, with its massive 13 mm. journal (the biggest of any 29/35 class motor) now has increased counterbalance to compensate the weight of a new, more heavily proportioned conrod. A pressure fitting is an optional extra, enabling the engine to be used with a crankcase pressurized fuel system if desired. The familiar Max coupled throttle system of the RC model has been completely redesigned. The carburetor is now an all-machined unit, very precise in operation, with a separate air-bleed screw idling adjustment.

Claimed performance for these new models is ca. 0.6 bhp at 15,000 rpm for the 29, and ca. 0.7 bhp at 15,000 rpm for the 35. Having test-run these motors, we would say that, using good fuel, these figures are not far wrong.

PAKISTAN

This year's World Model Glider Championships, held in Belgium, were full of surprises, but one of the most unexpected results was the outstanding performance of Habib M. Habib who travelled 4,700 miles from Pakistan, to place third. MAN reader Habib, who lives in Karachi, is a real

(Continued on page 40)

# NEW



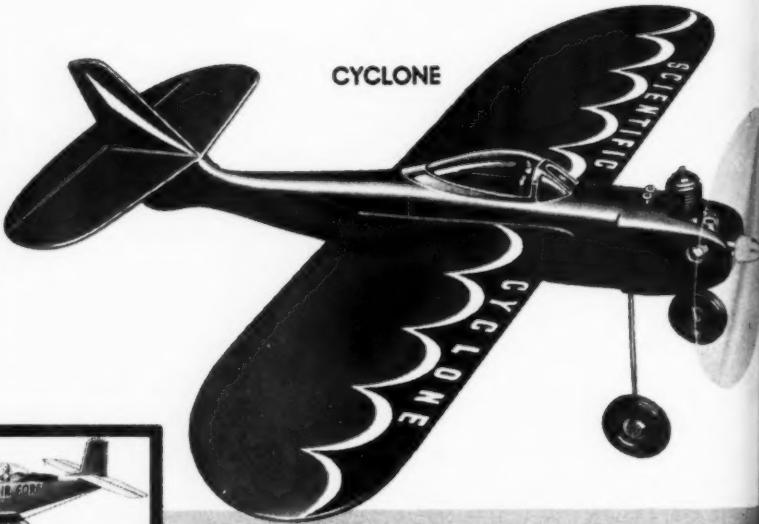
**\$2.95**  
each

CESSNA 172

## SCIENTIFIC MODELS FOR KING-SIZE FUN!

**CESSNA 172** ..... \$2.95 Here's the newest Cessna private plane that you can fly yourself . . . by U-Control, of course, using just about any  $\frac{1}{2}$ A gas engine (up to an .074). Performance-wise you'll find this model just about the snappiest you can fly—regardless of price. And—note the trim, slim, uncluttered lines of this scale beauty. Wingspan is a full 21 inches. The kit is all prefabricated . . . with a pre-carved balsa fuselage and all parts already cut, formed or shaped for you.

**CYCLONE** ..... \$2.95 U-Control fans . . . get ready to fly up a storm! You're looking at our brand new "CYCLONE" . . . 7 ounces (with the engine, that is) of sheer flying dynamite. The enormous wing area of this model (21" span) provides tremendous "lift" that lets you take off realistically . . . fly every stunt in the books . . . then land as softly as a feather. You can power your very own Cyclone with any small bore gas engine .035 to .099. And—assembly of the model is a cinch from the all prefabricated kit (with our pre-carved balsa fuselage, too).



### ◀ MORE NEW RELEASES

See your favorite hobby dealer for these popular U-Control flyers . . . by SCIENTIFIC, natch! We call 'em our "super 6" . . . because they're super in every detail. Look! Performance! Ease of Assembly! Quality Features! The Works! And the price is a tidy \$2.50 each. Each kit comes super prefabricated with our exclusive pre-carved balsa fuselage and all parts formed or shaped for easy assembly. Most models have 18" wingspans. They power with gas engines .020 to .074.

**\$2.50**  
each

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**SCIENTIFIC MODEL AIRPLANE COMPANY**  
113 M12 MONROE ST. • NEWARK 5, N.J.



**KINGPIN** \$1.69  
SPAN: 14" For .020 to .049 Eng.  
Brand new profile stunt model  
with a big 6 sq. inch wing.  
U-Control flyer. All prefabricated.



**AIRCOUPE** \$2.50  
SPAN: 18" For .020 to .074 Eng.  
A real "beaut" of a model. It's  
authentic scale ... for U-Control  
flying. Prefabricated. Carved fuselage.



**Messerschmitt** \$1.95  
SPAN: 18" For .020 to .074 Eng.  
U-Control scale flyer of the ME-  
109 Ger. "Desert Fighter". Pre-  
fab model with carved fuselage, etc.



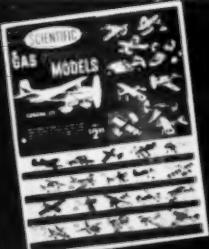
**Gee Bee Sportster** \$1.95  
SPAN: 18" For .020 to .074 Eng.  
Brand new U-Control scale model.  
An excellent performer. Kit is all  
prefabricated. Carved fuselage.



**Half Pint Racer** \$3.95  
LENGTH: 9" For  $\frac{1}{2}$ A Gas Eng.  
New, improved model. Spuds over  
40 m.p.h. Direct wheel drive. Pre-  
fabbed formed body, rubber wheels.

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every modeler.



# GAS POWERED MODELS

Greatest Values! Top Performers! Best Looking, Too!



**Stink Dive Bomber** \$2.50  
SPAN: 18" For .020 to .074 Eng.  
Something new! This U-Control  
bomber drops bomb as you fly.  
Prefabricated with carved fuselage.



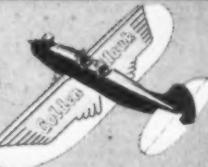
**Stits  
"PLAYBOY"**  
\$1.95  
SPAN: 18" For .020 to .074 Eng.  
One of our hottest looking and  
performing U-Control planes. Styled  
from Goodyear Racer. Prefabricated.



**No. Am. "Texan"** \$2.50  
SPAN: 18" For .020 to .074 Eng.  
Authentic scale model of the USAF  
ATB Trainer. A top-notch "fly it  
yourself" model. All prefabricated.



**P-40 Flying Tiger** \$2.50  
SPAN: 18" For .039 to .074 Eng.  
Our popular U-Control model of this  
Curtiss World War II fighter.  
Prefabricated w/carved fuselage.



**GOLDEN HAWK** \$2.50  
SPAN: 18" For .020 to .074 Eng.  
Big expansive wing . . . extremely  
colorful model for U-Control fly-  
ing. Carved fuselage, prefabricated.



**Torpedo Speedboat** \$2.95  
For Gas Powered OUTBOARD Eng.  
Length 20", Beam 8"  
Bonne mahogany veneer hull. A  
real speedster. All prefabricated.



**"ELDORADO"** \$1.69  
14 $\frac{1}{2}$ " Long. For Elec. Outbd. Mtrs.  
Fast, sleek speedboat — really  
modern w.wrap-around windshield  
& swept wing fins. Prefab.



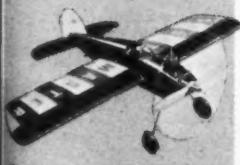
**Buckeye Jr. Cabin** \$3.95  
For  $\frac{1}{2}$ A Eng., Electric Motors  
Here's our sleek cabin cruiser. Has  
a removable balsa cabin, 14"  
carved balsa hull - 100% complete.



**F4U-5 "Corsair"** \$1.50  
SPAN: 18" For .020 to .074 Eng.  
Profile fly-it-yourself model of this  
famous WW II fighter. It's U-  
Control, flies like a dream. Prefab.



**STUNT MASTER** \$1.95  
SPAN: 18" For .020 to .099 Eng.  
Very popular  $\frac{1}{2}$ A stunt plane.  
Highly colorful . . . terrific ac-  
tion. Super prefabricated kit.



**Super Stunt Master** \$2.95  
SPAN: 20" For .049 to .099 Eng.  
It's big! Terrifically colorful, too.  
Same U-Control stunt model.  
Carved fuselage, etc.



**ZIG-ZAG** \$1.69  
SPAN: 18" For .020 to .074 Eng.  
Fast! Colorful! Here's a red hot  
U-Control model with real get up  
and go! Prefab. Carved fuselage.



**Piper Cub Cruiser** \$1.95  
SPAN: 18" For .036 to .074 Eng.  
All prefabricated, carved balsa fuselage  
model. It's scaled after the  
famous "Cub" private plane.



**LITTLE STINKER** \$2.95  
SPAN: 18" For .020 to .074 Eng.  
"Pitt's Special" championship stunt  
flyer. Highly colorful model. All  
prefabricated kit.



**RYAN TRAINER** \$2.50  
SPAN: 18" For .020 to .074 Eng.  
Famous Ryan trainer that you fly  
U-Control. Prefabricated kit has a  
carved fuselage, etc.



**E-Z TRAINER** \$1.29  
SPAN: 18" For .039 to .074 Eng.  
Big value deluxe profile trainer  
with "jet fighter" styling for U-  
Control. Prefab w/bubble canopy.



**LITTLE MUSTANG** \$1.95  
SPAN: 18" For .020 to .074 Eng.  
Famous escort fighter model. Com-  
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balsa fuselage, formed balsa wing.



**Cessna 182 Tricycle** \$1.95  
SPAN: 18" For .039 to .074 Eng.  
Scale fly-it-yourself model of  
famous private plane. All prefab  
w/carved fuselage.



**T-28 TRAINER** \$1.50  
SPAN: 18" For .035 to .074 Eng.  
North American's U.S.A.F. standard  
training plane. Now you fly it U-  
Control! Prefab., profile model.



**Piper Tri-Pacer** \$1.95  
SPAN: 18" For .039 to .074 Eng.  
Stable U-Control flyer with a tri-  
cycle landing gear for safe landings.  
Prefab, carved fuselage.

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... be specific say**

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**SCIENTIFIC MODEL AIRPLANE COMPANY**

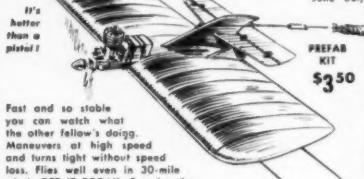
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# CLEVELAND

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(Whatzit was described in M.A.N. June '38.)



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better  
than a  
pistol!

Fast and so stable  
you can watch what  
the other feller's doing.  
Maneuvers at high speed  
and turns tight without speed  
loss. Flies well even in 30-mile  
wind. GET IT TODAY. Surprise the  
crowd with this prefab winner, de-  
signed by Riley Wooten.

**YOU'LL LOVE ALL THESE IT'S - TRY THEM!**



Each \$1.95

Only R. C. Glider today—Flies Free  
flight beautifully. Kit \$22\*

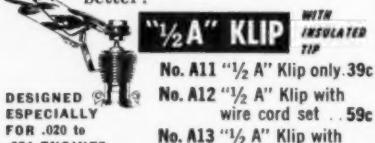
5' CLEVELAND CONDOR  
SOARER—Sears for hours—  
Loads of fun. Kit \$19\* \$1.95

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Send 5¢ for catalog of Cleveland Models.

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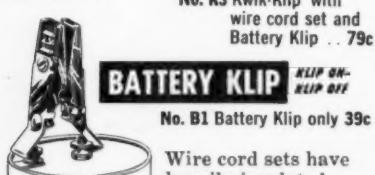
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"ONE BITE-ON TIGHT!"  
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Wire cord sets have  
heavily insulated,  
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globe-trotting modeler. Some months ago, we had a letter from him in which he told us of his hopes of competing in the next Australian Championships. In Belgium, Habib was one of only four modelers to make a perfect flight score (others: winner Ritz, U.S.A., Sokolov, Russia and Tahkappa, Finland). Actually, he was unlucky not to place higher in the final result. Making his towing run for the fly-off, he tripped over on the rough ground and his model unhooked to record only 1:26. Nevertheless, he has every reason to be pleased at having placed his country's name so well in this, the first World Championship event at which Pakistan has been represented.

### IN BRIEF . . .

Germany . . . Two-foot, Pee-Wee powered RC models are no longer a novelty, but pretty unusual is a two-channel Pee-Wee powered ship of this size. Klaus Wegewitz of West Berlin has built and flown such a model. Span is only 22.8 in., weight 6 oz. Wegewitz is an employee of the Wehra engine firm.

Russia . . . A new book on model engines has recently appeared in the Soviet Union. Written by the well-known Russian modeler and engine designer, O.K. Gajevsky, it is a very comprehensive hard-cover volume of over 250 pages. Among the illustrations and data included in the book on foreign engines are several U.S. productions, old and new; among them, the Torpedo 15, Dooling 29, McCoy 60, Bungay 600, Cameron 19, Hornet 60, O & R Mid-jet and El-Six.

Australia . . . Does anyone remember the Lackey Zenith? Yes, it belongs to the Comet Clipper era. Down in New South Wales, Ted Baker still has one flying, 20 years old. It has just completed its 100th flight after being converted to RC.

## Sky-Scraper

(Continued from page 21)

is then cemented to the trailing edge. Make certain these are properly located to facilitate sheet covering of the center section on top and bottom. Plywood ribs are the last pieces installed.

Stabilizer structure is extremely efficient, yet simple enough so that it need not be described.

Cut out the wing mount formers and attach aluminum tubes as in the wing. Slip both wing halves and the formers over the root wires, together with the mount sides and cement the sides to the formers. Make sure at this point that the leading edge of the wing is 5 1/16-inch higher than the trailing edge. Once this is dry, cover the top of the wing mount with 1 1/32-inch sheet and cement the other two plywood root ribs on the sides of the mount. A perfect fit with the motor tube can be achieved by wrapping sandpaper on your 1 1/4-inch pipe and sanding the bottom of the mount to fit. This also gives a very neat juncture between the top sheet and the tube. *Do not cement the wing mount on yet!*

Most important part of any rubber job is the propeller and nose block assembly. Building it isn't tough—but take your time and do a good job. It will pay off at the contests. Cut the prop block as shown and drill the center hole. Carve it in the usual procedure, rear side first, then front, and try to keep it balanced at every step along the way. This makes final balancing much easier.

Before trimming the blade outlines, make the magnesium hub and hinge assembly. Aluminum would also be okay or, if you prefer, make it out of hardwood with a conventional sheet metal and wire hinge.

(Continued on page 42)

## The Perfect

### GOOD TTPW Dual Units



Complete receiver kit  
with all tubes and relays. \$39.95

Complete transmitter kit  
with tubes, xtal, cabinet \$74.95



### COMMANDER RECEIVER AND TRANSMITTER

You can't buy better dependability than you receive in the Commander Receiver and Transmitter. With photo pictorial diagram, these are a cinch to wire. Excellent as starter units for the R/C beginner. Thousands of satisfied customers attest to the ease of assembly and the reliability of operation.

The Commander Transmitter uses a 3A4 in a powerful hand held circuit. Comes complete with tube, crystal, and punched screened metal cabinet 3 1/2 x 7 1/2 x 8. Power supply may be added later. Only extras are batteries and three foot section music wire . . .

\$9.95

Commander Receiver features the famous Howard McEntee Simple Single circuit with subminiaturized components completely housed in plastic box 2 x 2 7/8 x 1 inch. Weight three ounces. Requires 1 1/2 volts of A and 45 volts of B. Range checked in excess of one mile on the ground. Complete with tube, Gem standard relay . . .

\$7.95

with Micro Gem relay . . .

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## ACE RADIO CONTROL

BOX 301, HIGGINSVILLE, MO.

# **Gift for Christmas . . . ACE RADIO CONTROLS!**

## **WATCH FOR THESE BRAND NEW ITEMS! COMING SOON:**

|                                  |   |      |
|----------------------------------|---|------|
| SPECTRA STRIP                    | 10 wire cable, flat. Has 10-color coded wires, 19 strands of #24 wire. Per foot.  | .20  |
| HILLCREST AILERON BELL CRANKS    | Per pair.   | .45  |
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| TUNING SCREWDRIVER               | Has Tenite handle, poly tube. Is 6" long, super deluxe catalog #T-SD. Each.   | .85  |
| IMPORTED EAR PHONE               | Each.   | 1.95 |
| EVEREADY NICAD PEN CELLS         | 450 mah. Each   | 2.95 |

**AND MANY MORE ARE IN THE WORKS!**

## **OTHER DESIGNER APPROVED RC KITS**

For several years Ace has worked with top R/C designers to produce exclusive designer approved control kits, in which the designers themselves have selected and approved components used. Here are some ACE R/C exclusives:



## **Now in Kit Form . . . KRAFT TONE RECEIVER PARTS**

Flash! New Kraft tone receiver parts! Due to popular demand, Ace has made available parts for this unit. They may be had separately or in a combo parts package.

|  |  |       |
|--|--|-------|
| PC Base reworked to hold the CR60 transformer, undrilled | CK722.....                             | .99   |
| 5 mF IEI electrolytic                                    | 6007.....                              | 1.95  |
| 7.5 Wound coil 27½ mc.                                   | 7.5.....                               | .85   |
| 20 ub RPC  | .45 PB #1.....                         | .10   |
| CR60.  | 1.63 Complete combo parts package..... | 19.95 |

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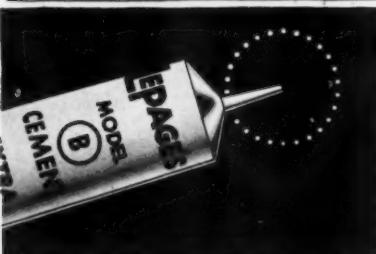
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Note that it is not necessary to angle the hinges. Now trim away the rear of the propeller and install the hub. Insert a length of 3/32-inch wire through the prop and the hub to keep it lined up while the cement is drying.

When absolutely dry, trim away the front of the blades and shape the blade outlines, using a template to keep them identical. Now wrap nylon around the blade-hinge joint and dope the prop three times with sanding and balancing between. Then cover with silk and dope and sand until you're satisfied with the finish.

Build the nose block as shown on the plans and install the bearings. I used a New Departure R2A in front and a 1/4-inch I.D. Torrington needle bearing in the rear. I think they are worth it. But if you don't think so, or can't get them easily, just substitute a standard model airplane thrust ball bearing in front and a firmly attached piece of aluminum sheet on the back of the nose block. Then disregard the next paragraph.

The bearings are pressed into snug holes in front and rear of the nose block. A 1/4-inch brass tube (or steel, if you can get it) is pressed into the front bearing and rides inside the rear bearing. The prop shaft is inserted through this and allowed to slide fore and aft for tensioning the rubber.

Bend the rear hook on the 3/32-inch shaft (whichever bearings you use) and assemble the nose block, a washer, propeller and tensioner spring. Take a deep breath and the best pliers you can lay your hands on, and bend the front of the prop shaft back parallel to the shaft itself. This will have to be done in stages and I recommend that the front be left long until the last step. Insert the end into the hole in the prop hub and solder a piece of soft wire around the loop to give the tensioner spring something to push on.

Mount a small balsa block on a piece of 1/4-inch dowel, chuck it in an electric drill or a hand drill, and turn down the spinner with sandpaper as the tool. Hollow this out and cement it right onto the hub, making sure there is clearance so the tensioner works. Don't worry about the winding loop as the model is wound from the rear by removing the tail boom. This prevents the propeller from being damaged if the rubber breaks.

Entire model is covered with Jap tissue and given three or four coats of clear ni-

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trate dope. A carpet thread turbulator is cemented to the top of the wing 3/16-inch behind the leading edge. Rear of the motor tube and front of the tail boom plug are slotted for the 3/16-inch aluminum tube rubber anchor. Make this snug, since it acts as a key. Attach the balsa "hooks" for boom hold-on bands, dethermalizer hooks, limit string and other odd items and you're almost ready for flying.

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Hand glide the model, shimming stabilizer angle up or down as needed, until you're satisfied and bend the rudder for gentle right turn. Start power flights with about 100 turns in the rubber and increase by steps of about 50 on successive flights. Slight down and right thrust was necessary on the original to achieve an almost straight up climb on the burst, dropping the nose thereafter to a fairly fast right spiral climb.

As to what average duration you can expect, I just don't know—this ship seems to have a knack for hooking thermals under almost any conditions. So light the fuse!

## America Wins the Nordic!

(Continued from page 11)

Finnish team had finally dropped a flight so now there was no team with a perfect score. Czechoslovakia and Pakistan had triple maxes this round, the USA two, and Russia one. The triple repeaters had dropped to nine.

In the fourth round, I again found some nice lift and dethermalized into the woods for a max. Wiehle again missed the lift, getting 1:45. Sifleet once more put up a nice max.

By this time those leaders, principally Babic of Yugoslavia, Sokolov of Russia, and "la American," had quite a following who would wait to fly until the leader flew. So the models were going off in bunches in separate thermals, and it was quite impressive to see about a dozen models at a time soaring up above. This follow the leader showed up in there being 42 maxes this round. The nine triple repeaters all came through so there were now nine quadruple repeaters.

Although I hunted for my model in the woods for nearly an hour, it was lost, so I came back to the field to get the fifth flight in with my #2 model. Wiehle flew first this round to give me a chance to check out my model to see if the rebuilt stab had changed the trim, and he connected with some good lift for a max. I had some trouble on the tow, and when I tried to lead my #2 model in a circle, it came off the hook at less than half height. Fortunately, I had picked good air, and slowly but surely the model gained altitude and was away for my fifth max. I'll never forget the Canadian, Hugh Tuck's cry, "Ritz, you could fall in a well, and not get wet!"

Sifleet now put his model up for another fine max. Babic dropped a flight this round which was a shock to everyone as it was felt that he was one of the sure leaders. Jansson of Sweden, Thompson of Canada, and Wilson of New Zealand also dropped this flight, so although there were 30 maxes

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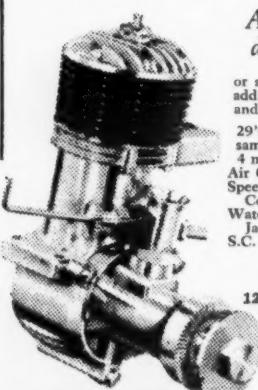
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this last round, there were left only five with perfect scores. These were Sokolov of Russia, Habib of Pakistan, Takkapaoa and Kikkonen of Finland, and Ritz of USA.

I rushed out to the woods and spent another hour looking for my #1 model as I had not thoroughly trusted my #2 model. The #2 model was the experimental model of this new series, and had towed bugs that I had taken out of the #1 model. Not finding #1, I hurried back to the field for the fly-offs.

It was announced that the fly-offs would start at 6:00 o'clock sharp, with fliers to launch two minutes apart. I borrowed some lightweight fuses from the Canadian boys so I could use a long fuse (about 12 min.) and still keep the same balance. The judges announced that I was to fly first, so at five minutes before six, Sifleet and I walked out with my model.

At about 1½ minutes before 6:00 o'clock, we noted some light thermal air, which had been operating on about a three-minute cycle throughout the day, was coming across the field. At the starting gun, Sifleet took about 30 seconds to light the fuse, so I had a little additional time for my plan, which was to tow for about a block upwind to gain additional time on a possible OOS flight.

To avoid the possibility of the model coming off the line again, I had set the tow tab farther to the right than I normally do, so the die was cast; I would not be able to circle the model in tow, but would have to tow in a straight line. Up the model went, leaning far to the right—one half minute—where was that lift? One minute—had I missed it? A minute and a quarter! Then I felt that little insistent tug again. The model started to come overhead from its far right position. I gave that last mad

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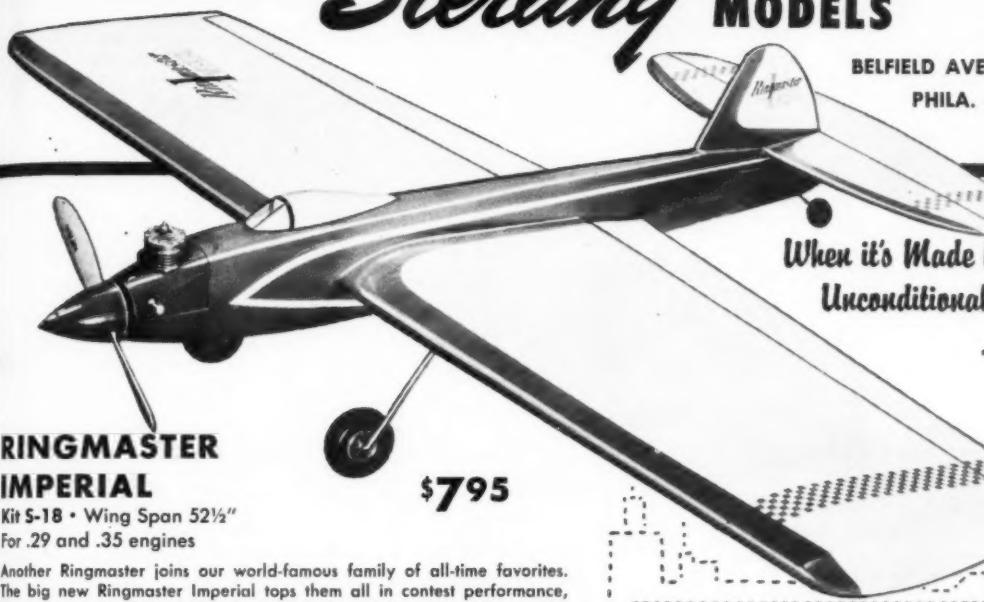
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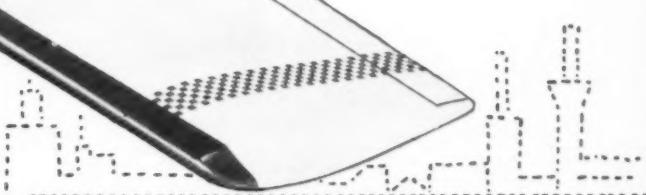
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gallop to get maximum altitude and the model was already one quarter left when I let it go. I had been on the line 1½ minutes and had run nearly three blocks upwind. I hadn't realized that the frequency of the thermal cycles would slow down that much as the air cooled toward evening.

As I trotted back to the starting point, Sokolov, the great Russian flier who was to fly second, was starting his tow with my model soaring overhead. I had found the thermal for him, and I think that he figured I was in the frontal area of the thermal. As he towed into the main body and went up faster than I did, the two models soared downwind together. My good friend Habib of Pakistan, who told me later that he had been playing "follow the leader" all day, flew next but was in between cycles and did not search for any lift, so was down in 86 seconds.

Takkapo of Finland was to fly next, but I don't know how he missed out as I was in the car by that time after my model. Kekkonen, the other Finn in the fly-off had lost one model and smashed the other so he had nothing to fly.

Sifleet was on foot after my model; I picked him up with the car and we continued the chase. My ship was holding steady at about 400 ft. with Sokolov's model at about 600 ft. as we left the field. At about 8 minutes, mine started to climb very slowly and got to about 800 ft., while Sokolov's was slowly coming down to about 300 ft. At 9½ minutes, my model dethermalized. We picked it up and continued after Sokolov's ship which landed ahead a couple of blocks. Averyonov, Sokolov's young teammate, was on foot after the model, and we picked him up and started the two mile return to the starting point.

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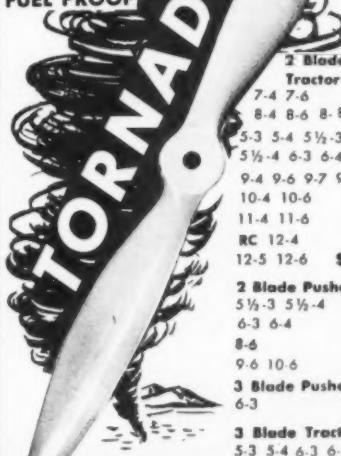
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When we got near the headquarters, some of the fellows came running out to meet our car and told us that I had won. The other fliers crowded around congratulating me. The victory was sweetest when former champions Hans Hansen of Denmark and Slabado Babic of Yugoslavia congratulated me. I was numbed by it all. At long last!

As I came up to the tent, Sokolov came up to congratulate me, and I told him that I wished he too could have won, as he is a great competitor. I proposed to the Russian team manager that we work together to get the rules changed on the fly-offs to continue flying three-minute maxes until everyone had missed instead of the one unlimited flight, and they enthusiastically agreed.

Later we went to the banquet at the officers club—hosted by the Royal Belgian Aero Club and the Military Commander of Bourg-Leopold. After numerous toasts and speeches, the awards were made. Finland won the team trophy with only one missed max out of the fifteen, while the USA team had our best Nordic results so far—fifth place.

### Men and Ships

(Continued from page 19)

MacRobertson England-Australia Trophy Race of 1934. Sir William MacPherson Robertson was an Australian tycoon in the candy business, and a citizen of Melbourne. He offered £15,000 total prize money plus organizing expenses for an air race between England and Melbourne, Victoria, as part of the centenary celebrations of that State. The race was to be in two sections, speed and handicap, with the winners getting £10,000 and a gold Trophy, and £2,000, respectively.

As entries began to come in, it became obvious that the race would likely be a walkover for one of the American planes entered. Partly due to geographical and economic conditions in the U.S.A., that country could show several suitable long-range high-speed airplanes. Using high-power radials developed to a fine pitch, and also advanced mechanical features—variable pitch airscrews, flaps, retractable landing gears—sometimes invented abroad but allowed to languish in their country of origin, such planes as the Douglas DC-2 and Boeing 247D were well ahead of their foreign contemporaries. It looked as though English competitors would be relegated to

(Continued on page 48)



**THESE 1/2-A MODELS SWITCH FROM CONTROL LINE TO FREE FLIGHT & BACK AGAIN IN A JIFFY!**

Each kit contains: formed landing gear, push rod, elevator horn, wheels, bell crank, firewall, decals, and all necessary hardware. All parts are completely finished. Only select Grade-A balsa is used. Full size detailed plans with many step-by-step construction features making it easy to build and fly.

- Ideal for beginners... and experts, too!
- All feature Famous JIGTIME CONSTRUCTION for easy, no-mistake assembly!



Kit No. G-8  
**\$2.50**

**PIPER CUB**

27 inch wingspan. This 1/2A scale flying model is so realistic that only the size makes it a model instead of the real thing! Includes formed plastic cowl, die cut clear plastic windshield.



Kit No. G-5  
**\$1.95**

**RASCAL 27**

27 inch wingspan. An outstanding favorite with all 1/2A model builders for years! Includes die cut clear plastic windshield.



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**\$2.50**

**ARROWJET 24**  
24 inch wingspan. Has the dash and class of modern Navy prop-jet design. Ideal for 1/2A gas engines. Includes formed clear plastic canopy.

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**FREE Top Flite PROP CHART**

# GAS KITS TOP THEM ALL!

Three terrific planes designed by George Aldrich, America's greatest stunt champion!



## the NOBLER CHAMPIONSHIP CONTROL LINE



### STUNT SHIP

Kit No. N-1

**\$8.95**

Wing Area 550 sq. in.  
Wing Span 50"  
Length 38½"  
Eng. Sizes .19 to .35

THE "WINNINGEST" STUNT MODEL EVER FLOWN... Won More Nationals and International Stunt Championships Than Any Other Model!

### these CONTROL LINE COMBAT

and STUNT TRAINERS are among America's greatest... two of the most successful planes ever designed!

### FLITE STREAK \$3.95

#### FLASH!

1958 NATIONALS WINNER OF BOTH Senior and Junior COMBAT

### BOTH OF THESE KITS CONTAIN:

- Full length shaped and notched leading and trailing edges and spars.
- Shaped fuselage.
- Select grade A balsa.
- Printed and precision die-cut balsa and plywood parts.
- Formed landing gear and push rod.
- High grade silkspan.
- Hardwood engine mounts.
- Complete detailed plans with many step-by-step construction features making it easy to build and fly.

### HERE'S WHY THEY'RE SUPERIOR MODELS:

1. Full length leading, trailing edges and spars. Require NO SPLICING, an exclusive feature for this size and type of model.
2. Assembly is easier, faster — with perfect alignment.
3. This Jigtime construction of notched spars, leading and trailing edges allows you to construct a symmetrical wing on a flat surface without special jigs, also making it warp resistant.



Kit No. N-3  
**\$2.95**

Engine Sizes .15 to .25  
Wing Span 31"  
Wing Area 230 sq. in.  
Length 22"

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AVAILABLE AT ALL LEADING HOBBY SHOPS

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**ENGINES**

### BOXER-TWIN

- DISPLACEMENT .45 C.I.
- 2-SPEED CARBURETOR
- RADIAL MOUNTED
- CUSTOM-BUILT
- FOR LARGE R/C MODELS

WITH PUMP \$79.95

(WITHOUT) \$69.95



### The BULLY \$13.95

|                              |         |
|------------------------------|---------|
| Displacement .19 C.I.        | \$13.95 |
| 2-Speed                      |         |
| Carburetor                   | \$3.95  |
| Vacuum Pump                  | \$7.95  |
| Exhaust Manifold and Silence | \$2.49  |

The 'PICCOLO' .049 \$7.95  
The 'RECORD' .09 \$9.95  
The 'MACH 1' .15 \$13.95

### The KOMET \$13.95

|                          |         |
|--------------------------|---------|
| Displacement .15 C.I.    | \$13.95 |
| Ball Bearing Crank Shaft |         |
| 2-Speed                  |         |
| Carburetor               | \$3.95  |
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The 'RECORD' .09 \$9.95  
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### ARISTO "SPACEMASTER" MARK-1 R/C RECEIVER Ready-to-Use \$19.95

Incorporates  
"single-touch"  
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"twin-matched"  
transistors, plus  
lo-drain hard tube.  
"Locked-in", deep  
etched printed  
circuit guarantees  
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performance.

Can be tuned over all newly allotted frequencies.  
Battery requirements: 30 V.B., 1/2 V.A. • Relay  
operation: GMA on idle, rises to over 4 MA on  
signal for positive relay operation. • Factory built,  
tested & guaranteed • Metal case • Wgt. 1 1/4 ozs.



Aristomatic COMPOUND ACTUATOR for R/C perfect for boats, includes electrical switching action; forward-stop-reverse-stop; Mechanical directional control; left-neutral-right-neutral; 3-6V operation... \$10.95

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the position of "also-rans."

De Havillands, by then well established at Hatfield as makers of sporting and transport airplanes, decided for their own good reasons to challenge the threatened US supremacy in the race, and announced in the aeronautical press their offer to build a special racer for the event, guaranteeing over 200 mph top speed, provided orders were placed within a deadline terminating on the last day of February 1934. This would leave them a minimum of less than eight months to design, build, and fly the racer. The price quoted was £5,000.

First to take the offer were the famed fliers Jim and Amy Mollison, followed by racing motorist Bernard Rubin, and then Mr. A. O. Edwards, boss of London's Grosvenor House Hotel.

De Havilland used every scrap of modern aeronautical knowledge and the latest mechanical features in their classic twin-engine layout, later to be repeated with the same success in their wartime Mosquito. Light weight and low drag were the keynotes of the all-wood construction. Special versions of the de Havilland Gipsy Six inverted, six-cylinder aircooled inline engines were developed with increased compression and r.p.m., giving 224 hp at 2400 r.p.m. at sea level and driving French Ratier two-position automatic airscrews. Main fuel was carried in two tanks (128 and 110 gallons) in front of the cockpit, behind which was a further, 20 gallon tank for trimming, in all giving a full-throttle range of 2580 miles at 10,000 ft and rather more at cruise setting. Maximum speed was around 235 mph at sea level; cruise at 10,000 ft 220 mph; best initial rate of climb 1200 ft/min in fine pitch; absolute ceiling (coarse pitch) 19,000 ft; stall with flaps down 78 mph. Weights were: empty 3003 lb.; loaded 5550 lb. Wing loading was 26.1 lb/sq in; span 44 ft; length 29 ft. 1 in.; height 9 ft; wing area 212.5 sq. ft.

Mr. A. O. Edwards' Comet was ready just eight days before the race and was to be flown by Charles W. A. Scott and Tom Campbell Black. Scott had already made an Australia-and-back solo flight in 1931 and another solo to Australia in 1932 on DH Gipsy Moths, and Black too was an experienced long distance flier. Their machine, registered G-ACSS and painted signal red, is featured in the tone general arrangement drawing. The name *Grosvenor House*, painted on each side of the nose, the fuselage flash, and the registration letters on the fuselage sides and above and below the wing, were white. The race number 34 was painted black on an oval silver ground on the rudder. Spinners and airscrews were natural metal finish.

The Comet's chief competitors in the race were the KLM DC-2 flown by Parmentier and Moll, which eventually came second to the winning Comet and first in the handicap section; Jackie Cochran and Wesley Smith in the Gee Bee QED (they retired from the race in Roumania); and the Boeing 247D piloted by Col. Roscoe Turner and Clyde Pangborn, who came third in the speed section.

Scott and Black got away from Mildenhall, Suffolk, on October 20, 1934, after the Mollisons, who in their black and gold *Black Magic* (Comet G-ACSP) were well in the lead on their first 2330-mile hop to Baghdad but later had to withdraw at Allahabad with engine trouble. The third Comet, the Rubin-owned green and white G-ACSR flown by Cathcart Jones and Ken Waller, reached Melbourne only after four and a half hair-raising days, but the crew turned right round again and flew her back to England to create a record for the round trip of 13 days 6 hours.

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### SET # W-7

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World War 1

German Air Force

made wide use of

these fighters.

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GRUMMAN F3F-1, 2

Carrier biplane!

BELL AIRACOMET

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WW-1 pursuit—a favorite

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SPAD S-XIII C 1

Renowned WW-1 French pursuit

### CURTISS MODEL A

A competitor of the Wrights

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Great French WW-1 pursuit

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Man's first flyable plane

### SET # W-3

CURTISS P-1 HAWKS

Glamorous Army fighters

### F11C-2 GOSHAWK

Navy carrier fighter

### P-4E HAWK

Greatest of all the Hawks!

### SET # W-4

REPUBLIC P-47D

The wonderful Thunderbolt

### SPITFIRE 2

Battle of Britain hero

### MESSERSCHMITT Me-109J

WW-2 German fighter

### CURTISS P-40D

American WW-2 Warbird

### SET # W-5

GRUMMAN GFG-3

Navy's shipboard fighter

### DOUGLAS C-54

Air Force transport

### DOUGLAS A-26

Invader—now B-26

### BOEING B-17

The Flying Fortress

### CONSOLIDATED B-24

Liberator—a heavy!

### CURTISS A-25

Navy divebomber

### SET # W-6

CONSOLIDATED PB4Y

That Catalina!

### NORTROP P-61

Black Widow!

### BOEING B-29

Famed Superfortress

### BOEING C-97

Military transport

### MARTIN B-26

Medium bomber

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Enclosed \$..... for the following plan sets.

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| <input type="checkbox"/> Set # W-3 | <input type="checkbox"/>           | <input type="checkbox"/> Set # W-7 |
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- Enclosed \$7.00 for all eight sets.

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Grosvenor House drove into bad visibility over the Continent which persisted until they were approaching Turkey. After an emergency landing at Kirkuk they slipped into Baghdad just in time to see the Mollisons take off, but on the leg to Allahabad they passed Black Magic and landed first. On the 2210-mile stage to Singapore their lead increased, despite battling through storms for the latter part. By now they were very tired as they took off once more and headed out over Borneo and the Timor Sea, graveyard of many planes and pilots. To fatigue was added apprehension as the oil gauge for the port engine began to lose pressure. They reached Darwin on the mainland of Australia with only one engine, tried unsuccessfully to find the engine fault, and, heart in mouth, took off for Charleville inland with full load and pulling maximum power on the failing engine. They never did fault that engine, for the trouble later turned out to be due to the oil gauge itself, but all the way to Melbourne they had to nurse the power. They landed in Melbourne in pouring rain at 3:30 pm on October 23rd, more dead than alive. Scott's comment after reviving slightly was "It was a lousy trip and that's probably it."

But they had won the 11,700-mile event in 70 hours 54 minutes 18 seconds, including six intermediate landings, at an average flying speed of 176.8 mph.

Grosvenor House was later bought by the Air Ministry for testing and numbered K5084. Back on the civilian register, in 1937 it was piloted by Ken Waller in the King's Cup Race, by A. E. Clouston in the Istre-Damascus race, and from Croydon to Cape Town and back by Clouston and Mrs. Kirby Green. In March 1938 it notched another notable flight of over 26,000 miles to New Zealand and back crewed by Clouston and Victor Ricketts, breaking 11 records on the way.

It spent the war under a tarpaulin on a British airfield but was rescued, and eventually rebuilt by students of the de Havilland Technical School at Chester. It now hangs in the de Havilland Engine Company showroom at Leavesden, Hertfordshire.

In 1935 two other Comets were built, F-ANPZ for the French Government, and G-ADEF for a record attempt to Cape Town by Campbell Black and G. C. McArthur. The latter machine was destroyed after Black and McArthur baled out near Khartoum because of propeller trouble.

## Radio Control News

(Continued from page 24)

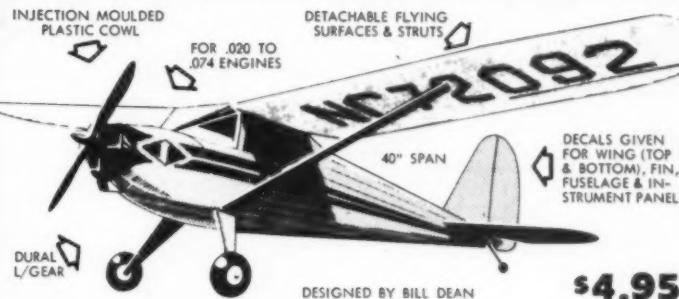
rudder. A modified deBolt servo provided forward, reverse and stop switching to drive motor. Since this shot was taken, deck fittings and rigging has been added.

We wondered when the day would come when the higher authorities would question the flying of models. John McKiniry of Loami, Ill., has built a 16-foot, 300-pound job, powered by a 27 HP drone engine. Costing about \$300 to build, the speed is around 150 mph and the plane is equipped with movie camera and parachute. Although four years of work has gone into this project, the last report had the CAA saying "no." Afraid we'll have to agree with them. The newspaper photo reminded us of some of the small racers built back in the 30's for the National Air Races.

The beautiful model in photo is being prepared by Mr. C. La Mar Kemp, 3029 Valwood Parkway, Dallas 34, Tex., for an

# LUSCOMBE SILVAIRE

## Latest Jetco R/C & F/F "Superscale"!



DESIGNED BY BILL DEAN

\$4.95

Coming to your local dealer in late November, is our big new kit of the ever-popular 2-place LUSCOMBE SILVAIRE B-A. Its a companion model to the last two Jetco Superscale - the Piper Super Cruiser and Cessna 170, which have already set a new high for single-channel R/C (and F/F) scale kits. If ever a plane design was ideal for R/C installation, its the roomy-cabined, stable-flying Silvaire. Just to list a few of the kit features - those lavish decals are ALL included; the tricky cowl is injection (NOT vacuum) moulded and the dural L.G. is completely finished. All this and satiny balsa, razor clean die-cuts, ample hardware, mouth-watering plans and even cement - for only \$4.95. Better get one quick before we come to our senses and double the price!

*Bill Dean*

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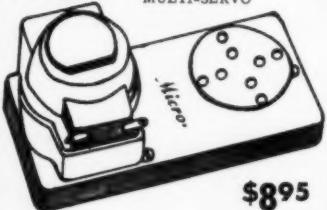


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FORT SMITH, ARKANSAS

Life Cycle Tested  
over 1000 FLIGHTS

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MULTI-SERVO



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##### SPECIFICATIONS

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Size 1-1/4 W X 2-1/2 L X 1-1/2 H  
Voltage 1.2 to 4.5  
Current used at 3V.  
No Load 80 MA  
1 lb. Load 160 MA  
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Same Specs. as above  
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endurance hop. It is modified from the design of the long famous English RC model, the Radio Queen and is slightly reminiscent of the old Flying Quaker and Westerner of 20 or so years ago. A single-channel Babcock radio with a Tomoser servo takes care of rudder and elevator and we hope the fuel load for the Fox 35 will not be too heavy. Mr. Kemp plans to install a superhet receiver in the near future.

From the East Bay Radio Controllers of Oakland, Calif. we learn that Bob Heiss now has the Bay Area record for cross country with 22 miles and for speed with 79.9 mph. His K & B 35 powered "Heisenfaffer" did near 80 mph with a 16 oz./ft. wing loading and using a TTPW system. Bob also flew one of the most unusual RC jobs at the NATS. His was a twin K & B 35 powered job with trike gear, brakes, rudder, elevator and engine control on Dual Proportional.

Of special note is the fact that Commander Weise, in charge of Navy RC judging at the NATS, flew Howard Bonner's Astro Hog on a complete flight. The Commander had a short briefing before take-off and then, never having flown an RC model before, proceeded to do an excellent job of flying. Shows what a good system plus a knowledge of fundamental flying can do. The scale event at the NATS was up this year with Dr. Elizondo's (Mexico) Fokker D-VII being one of the highlights. The 7-foot model was Fox 59 powered and used 8-channel gear. Other scale models included Mustangs, PT-19's, Cubs, and a Seawee. Hal deBolt may kit the Cosmic Wind job that brought him 9th in RC scale.

From the KC/RC Contacts comes the little discussion that radio control should be the ideal solution for those interested in aerodynamic development. We can't agree more whole-heartedly. It's pretty well proven that practically anything having a conventional wing, fuselage and empennage and a means of providing rather conventional thrust, will fly and turn around in the air. What's wrong with helicopters, ducted fans, deltas and flying platforms?

The DC-RC Newsletter points out that Walt Good, AMA president, has requested six spot frequencies strictly for RC work. These could cover the range of 25 to 200mc and would have separations of 25 or more. Walt pointed out to the FCC the problems with the traffic signals, Class D telephone units and the present high cost of superhets. To date, there have been no "universal" front ends which could be built or purchased which would give all superheter receivers the required selectivity. Frequencies suggested by the AMA would fall in the 72-76mc band around 42mc. This is another reason for being sure your FCC registration is on file.

The Radio Control League of Orange County Calif. now is in operation at Fullerton. A roster of about 40 members indicates a good potential, especially if they can obtain a good flying site. Same old problem all over. Main purpose of the club is to help the 16 and 17 year old modeler who really wants to get serious on the subject. Contact Mr. Stephen Sklynyk, 1300 W. Woodcrest, Fullerton, Calif.

#### NEW ITEMS

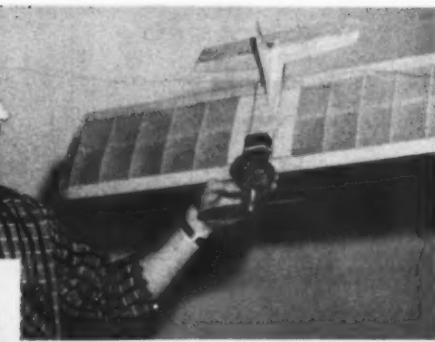
From the ABC Battery Company, 7912 Bellaham Ave., NE, Albuquerque, New Mex. comes a new nickel-cad cell suitable (Continued on page 52)



**BOB HUNTER**  
'59 National Open and Grand Champ



**BILL HUNTER**  
'59 Jr. National Champ



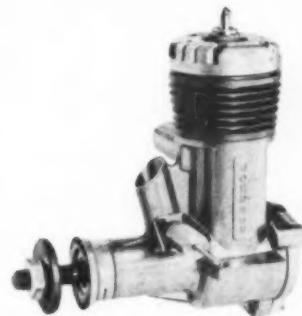
**RILEY WOOTEN**  
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*Bob Hunter Bill Hunter Riley Wooten*

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Disp. .3348  
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Stroke .718  
Comp. Ratio 6.5-1  
Weight 6.7 oz.

\$15<sup>95</sup>  
LIST PRICE EACH

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Disp. .3492  
Bore .770  
Stroke .750  
Comp. Ratio 11.2-1  
Weight 6.7 oz.

\$15<sup>95</sup>  
LIST PRICE EACH

### .32

Disp. .3172  
Bore .750  
Stroke .718  
Comp. Ratio 9.1-1  
Weight 6.6 oz.

\$15<sup>50</sup>  
LIST PRICE EACH

.29

Disp. .2912  
Bore .718  
Stroke .718  
Comp. Ratio 8.5-1  
Weight 6.5 oz.

\$14<sup>95</sup>  
LIST PRICE EACH



#2

HI JOHNSON'S TECH TIP — Got fuel flow problems? Here's the Scoop... FREE... on "Trouble-shooting Your Fuel System." Get complete professional information on tank location, what tank to use, correct fuel, etc. Just fill in your name and address on the coupon below, include a 4¢ stamp, and mail them to me.

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Performs equally well in hot-cold-damp-dry climates.  
Two low drain tubes used, no transistor grem-  
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THE ESSCO-Lorenz Receiver after 8 years is still con-  
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ESSCO POWER SUPPLIES operate XMTRs from  
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Std model for most CW or tone XMTRs ..... 12.95  
SPECIAL REGULATED VOLTAGE model for the  
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**IMPORTANT—RCers TAKE NOTICE**  
New FCC rules effective 11/15/59 require the use of a  
factory sealed crystal oscillator in your XMTR. The  
mfr must supply written certification of unit's adherence  
to the new rules. If frequency tolerance is not  
within current accept modulation, etc. You MAY NO  
LONGER build from parts or kits transmitters that  
do not incorporate factory sealed units as described  
except when a commercial operator (licensed) makes  
the adjustments. Also you MAY NOT change crystals  
yourself. Unit must either be returned to factory or  
be serviced by a FCC licensed operator.  
WATCH FOR NEW ESSCO FCC compliance RC  
transmitters and factory sealed oscillators, available  
shortly.

FACTORY WIRED/CHECKED (only) RF assembly to  
install in your XMTR case. Will give exact  
results. ESSCO MOPA XMTRs. Will modernize and  
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ABC #1 measuring  $\frac{3}{4} \times 2\frac{1}{2} \times 4\frac{9}{16}$ " and  
ABC #2 measuring  $15/16 \times 2\frac{1}{2} \times 4"$ , these  
cells have the following characteristics and  
properties: Weight 9 ounces, capacity 5  
amp hours, nominal loaded voltage 1.2v,  
terminals, screw studs, charge current 5  
to 10 amps, life expectancy-indefinite and  
a price of \$4.95. The price includes a two  
foot length of cable with a Kwik-Klip at-  
tached and the cells are fully charged as  
received. Charging may be done by con-  
necting directly to one cell of an auto bat-  
tery or a quick charge obtained in 40 min-  
utes at a 10 amp rate. We think this to  
be an excellent item for transmitter sup-  
plies.

\* \* \*

Polk's Modelcraft Hobbies, NYC, has a  
new modulator unit for their MOPA trans-  
mitter or any Lorenz MOPA transmitter.  
Transistorized, it measures  $\frac{3}{4} \times 1\frac{1}{2} \times 2\frac{1}{2}$ "  
and operates from a 67.5v source. Simple to  
build, using an etched wiring chassis, it  
will modulate either of the above trans-  
mitters in excess of 95%.

\* \* \*

Latest in the line of the Cobb Hobby  
actuators is "Electro 4." It provides for  
right and left signals by means of a  
cammed lever, plus an up and down  
switch with a quick blip for engine con-  
trol. As with other Cobb Electro Series  
actuators, this unit features an electronic  
brake that works. Two pen cells will pro-  
vide 600 to 800 movements, with a con-  
siderably greater number if larger cells  
or nickel-cad cells are used.

\* \* \*

Photo shows the new Gyro Electronics  
Model C-300 charger. We have not tested  
a unit yet but here is the essential data.



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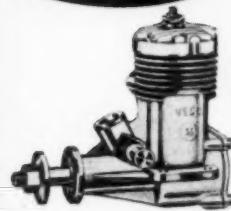
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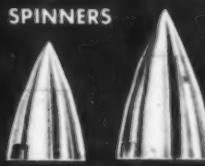
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Operation is from a 110 VAC source and the maximum charging current is two amps. A control varies the charging current which is read on the combination 0-500ma and 0.5 amp meter. Also new from Gyro is a combination Field Strength Meter and Tone Monitor. With a 500 microamp meter and miniature telescoping antenna it tunes from 25 to 54mc. Their Tone Modulator is said to convert all MOPA transmitters to 100% tone modulation, with frequency variable from 400 to 1000 cps.

The new W.S. Deans Company SPDT relay. Measuring .406 x .688 x .812 and weighing but 9½ grams, this is the smallest and lightest suitable relay available to the RC modeler within the low price range. The armature contacts are silver-palladium and the fixed contacts are nickel-silver and excellent contact longevity is claimed even

without the use of arc suppressors. Arc suppression is recommended, however, and for the Bonner servo a .25mfd capacitor in series with a 22 ohm resistor is used. Our checks on six units having 5000 ohm coils showed the pull-in current to range from 2.1ma to 2.9ma, with a drop-out current of from 1.8ma to 2.2ma, thus giving a hold current of about .55ma. The contact pressure on the NC contact measured from 6.5 grams to 12 grams with a mean of 9 grams. This compares very favorably with other relays used in RC work and the added feature of low mass of the armature and relay as a whole makes this an extremely promising relay for RC use. Deans has discontinued their 5-channel reed bank and now make two, four, six, eight and 10 channel units as standard. The coils are available in 3000 and 5000 ohm windings.

(Continued on page 54)

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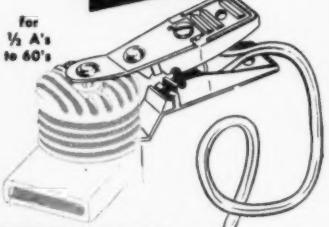
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The Burgess Battery Company, Division of Servel Inc., recently announced their sealed nickel-cadmium cells and batteries. Photo shows some of the units. In addition to the button cells, a penlight size (AA) and a regular size D cell are available. Six and 9.6 volt batteries are also available, being just the thing for some of the new transistorized receivers. It was not stated whether or not these cells are of the sintered plate type. If not, one cannot draw as high a peak current as with the sintered plate type, although the capacity is as stated when used within the recommended limits.

\* \* \*

CG Electronics has an improved VO-500 cell featuring a new hermetic seal and plating which is said not to peel or flake. The units we tested lived up to expectations capacitywise and the plating showed no signs of flaking after deformation tests. CG's new 4VO-500 pack consists of two cells in series, each side of center, with beryllium tabs brought out of the encapsulating material at plus, minus and center. Modeled after their military battery packs, this unit will withstand quite a bit of normal modeling abuse. Designed specifically for multi servo work. Our CG Pioneer relayless receiver is performing extremely well in our powered glider and is a natural for that small RC job.

Their Saturn receiver is an improved version of the original RT1-3V receiver and our tests, including temperature, came within a few percent of the published specs. Relay operation is positive and with a strong back contact pressure, little or no trouble should be had from vibration. Idle current with no carrier is about 10ma at 80F, with carrier about 6 ma. Relay current change is 40ma and the optimum audio frequency, at 80% modulation or more, is 500 cps. Maximum applied voltage is 3.1 volts and minimum operating voltage is 1.9 volts.

Our tests were performed using two VO-500 cells (2.4v). We went up to 10 pulses/second with no trouble with CG claiming up to 15pps. The guaranteed temperature operating range is 0 to 130F. With a weight of 2 $\frac{1}{2}$  ounces and the use of VO-250 cells, or larger, this unit can be used in a small RC job and still utilize the same battery for the actuator. No sooner had we checked out the Saturn, than we took a look at the CG Mercury superhet receiver and Venus transmitter. The Mercury measures 1 1/32 x 1 15/16 x 3 and weighs 3 $\frac{1}{2}$  ounces. Operating on 3 volts, it has an idle current of 3ma with

a 40ma relay current change. Selectivity is about 3kc at 6db, spreading to 10kc at 16db. With full antenna on the receiver and half-mast on the transmitter, no interaction was had between 27.045mc and 27.145mc at a distance of less than one foot.

A ground range of  $\frac{1}{2}$  mile was made with no decrease in relay current upon receipt of a signal. Merely change receiver and transmitter crystals, in pairs, to shift frequency.

**Buttercup**

(Continued from page 13)

drawing. Be careful not to get cement inside the snap or it will not work properly. Sand the whole unit and give it two coats of clear butyrate dope, diluted 40 to 60 per cent to eliminate any fuzz on the balsa. Sand with very fine sand paper and wet cover with yellow silk. When dry, give the silk about five coats of clear dope cut 50-50 in very light brush coats to fill up the pores of the silk.

This can be done only in small sections and by using the proper technique. If the brush is too full, the dope will just go through the silk and form large globs of dope on the underside. Dip the one-inch flat brush only about 3/16" to  $\frac{1}{4}$ -inch in the dope to get the proper effect. When the silk no longer absorbs this cut dope, you may then use three or four coats of clear dope as it comes from the jar. Cub Yellow finish should be sprayed on if possible. Cut it about 40 per cent with thinner and apply as many coats as necessary to get the finish you want—bearing in mind the more dope you use, the more weight you get!

The green wing letters and numbers NX 18268 are 2 $\frac{1}{2}$  inches high, 1 $\frac{1}{4}$  inches wide. They are placed with the last number 8 between the last two wing ribs. Note that the root rib is tapered to the shape of the fuselage at the joint where they meet.

Fuseleage is conventional. Build two sides one atop the other, noting that the door is on the bottom half (if you want to use it). I like to build one side first, then remove the pins and sand the whole side with a wide block wrapped with fine sandpaper to remove any irregularity that might occur in the wood. Then replace on the plans and build the second side on top of the re-worked first side. Actually 3/32 inch dowels would be more scale-like but this, and the  $\frac{1}{8}$  or 5/32 wood, is left to the builders discretion. I used  $\frac{1}{8}$  (Continued on page 56)

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inch square spruce on this model since it was to be flown and the weight was considered unimportant in relation to flying characteristics.

The windshield struts are 1/32 and .035 wire. The floor is 1/32 inch sheet balsa and the seat is either balsa or post card stock. Control stick is 1/16 brass tubing. The exhaust stack is 3/32 brass tubing with the flange of shim stock brass. The ends of the wing struts have hooks that fit into the 3/16 aluminum tubes in the fuselage and a rubber band pulled through the tube holds the struts in place.

Stabilizer and rudder are exact scale outline in construction and soft iron wire or aluminum can be used for hinges. The yellow rudder numbers are  $\frac{1}{4}$  inch high,  $\frac{3}{16}$  inch wide.

Use the same procedure in covering the fuselage with silk only this time use white silk (green if you can find it). Cessna Green mixed with Stinson Green in equal parts is almost leaf green and the two colors make a fine contrast. Again, use only the necessary amount of dope. Stabilizer and rudder are covered in the same manner.

You will notice that for true scale there is no dihedral. I would suggest at least  $\frac{1}{8}$  inch and possibly  $\frac{1}{4}$  inch for each wing for good flying.

Make necessary arrangements to start the motor and be able to fill the tank, so that the cowling will not have to be removed each time you fly. Model pins can be used on the cowling and windshield to represent rivets.

Cockpit details are shown on the drawing with the exception of rudder pedals and the safety belt. The safety belt is of two-piece construction. One-half of the belt is attached to the sides of the seat and both passengers utilize the same belt. The rudder pedals are hinged and either one of the set can be folded down and out of the way when not in use. The instruments can be either hand made or cut from other printed commercial plans of various kits. For the opalescent green mix some Silver and Swift White with the Cessna Green to get the proper color for the instrument panel.

The Berkley kit of the Pitts Special has a good drawing of the tail wheel detail if you want to go to the trouble of building it up.

The model weighed-in at 11 ounces which gives it a fast yet stable glide. I used an Atwood .049 Shrike with a Tornado 6-3 prop. Balance is about 30 per cent of wing chord.

## Altair

(Continued from page 17)

$\frac{9}{16} \times \frac{1}{4} \times \frac{1}{8}$ ". Now, take only your motor mounts and position them in place under the wing and drill four holes with a No. 43 bit. Bolt in place with No. 4-40 bolts, lock nuts, and washers. Glue with Elmers Glue. All the plywood motor mount brace, then cut and sand the balsa fill-in block,  $\frac{1}{8} \times \frac{1}{16} \times 1-9/16$ " and cement in place.

**Final Assembly:** Insert rudder with cement into fuselage slot. Finally, cement wing onto fuselage, applying three layers of gauze top and bottom, as shown on plans.

**Painting:** Apply silk to top and bottom of wing, then silk both sides of the fuselage. Paint first with three coats of Aero-Gloss clear, then three coats of balsa filler. Finally, paint three coats of any bright color of your choice. The brighter the color, the better the chance of opponents avoiding your plane in flight.

**Fuel Tank Procedure:** Assemble the pen bladder as shown on plans. Make sure you put between both balloons a mild baby

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The "Yankee Speedster" is a fast little 48" wingspan job ideal for novice or old pro. Kit is complete with die-cut balsa, full size plans and all parts to build plus a pair of R/C air wheels. Kit is priced at \$4.95 post paid. Order direct from Keystone Models, Box 13, Lemoyne, Pa., or at your dealers.

ENO. 09-15 UPRIGHT OR INVERTED

powder. Powder will preserve your rubber much better than castor oil, which has been used through the years. The two balloons are better than just one. You'll get better overall pressure with two balloons and better protection from wear and tear. This particular method has been tried and proven over many other hookups, over a two year period.

After you fill the pen bladder with fuel, hold the nose of the plane up at 90 degrees. At this point, make sure you release all the air from the pen bladder or you will have an erratic engine run.

When you hook up the plastic bottle protective shell, cut the back off completely. This will give room for the necessary fuel, and will prevent cramping, which can cause the pen bladder to burst.

For the first heat, you'll find 3 oz. (two good emptied squirts from your rubber ball filler), will do the job for the required 35 laps. Make sure, your plastic bottle is locked on tight, with rubber bands, or you'll find the air stream and prop wash will rip it off.

If you are using a motor with a short spray bar, where normally the neoprene would go, don't use soft black rubber on this type of spray bar. This soft type will definitely pop off from the pressure of prop wash, air stream, and pen bladder. Instead, use hard (medium) black rubber tubing (Perfect Brand). This will not pop off; make it comfortably long. The length will permit room for the contraction of the pen bladder, and also help the black rubber tubing from not popping off the spray bar. If you use a Fox motor type, you'll find the spray bar is long enough to use a soft black rubber tubing (Veco Medium Brand).

When making final adjustments on your motor and pressure system, for convenience sake, pre-set your needle; usual on the average motor, between 2½ and three turns from closed position.

Start your motor, first, by naturally filling the bladder, then pinching fuel line with a clothespin reversed, with two rubber bands over it. Apply the tubing to the spray bar, then put a few squirts of fuel in the exhaust stack. Turn the prop three times slowly, hook the battery clips up and, with a good flip, your engine should start. Immediately, as the engine starts and hits its maximum rpm, release the pinching clothespin and it is ready for flight time. If your timing is good, your clothespin release will be accurate and prevent flooding of the motor.

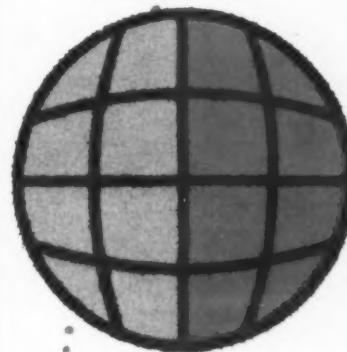
Remember, pen-bladder pressure systems or crankcase-pressure systems, are limited. Their usage is justified in the first 35 lap heat, where speed will get you to win or place for the following heats. A conventional tank is the answer for the "pit stop heats."

**Control System:** Hook up control system according to plans, and make sure you



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## John Maloney's M. A. N. Memo 9

Here at World Engines we like to think that we are rapidly developing into the number one model airplane specialty jobber in the country. We offer a very broad range of R/C items as well as a wide selection of engines and parts. For instance our Thruster .29 motor will fit on peg board across one complete wall panel. We can tell at glance when we are running low — and we do keep our stock up. We have added Jet-co kits and the Aero R/C planes plus Top Flite kits and props and Perfect Accessories. We carry Lee's doope, Cobb Hobby R/C, Superglue, Hi Fire Glo Fuel. We offer our own diesel fuel. We're doing a land office business in World Engines silk. This silk is very close grain and has extremely high wet strength so it won't separate when you are pulling your covering job nice and taut. White 80c peryd.

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Fuel. We offer our own diesel fuel. We're doing a land office business in World Engines silk. This silk is very close grain and has extremely high wet strength so it won't separate when you are pulling your covering job nice and taut. White 80c peryd.

Our crazy 3 volt glo plugs 37½c @ have gone well. They sure do the trick for a beginner as he can hardly flood and foul the plug. In addition we of course sell OS, Superglue, Hi Fire Glo, Frig engines and Cosmic R/C and Bennett Servos. So Mr. Dealers—if you sometimes get weary of the same old hash why don't you drop us a card and let us send you our literature. We are in business to sell to dealers, not to sell retail though, if someone sends us \$12.95 for our standard Max 35, he gets an engine. The point is that we are not enticing them to business with trade-in schemes or tie in deals or discounts. We advertise in this magazine because it is read by model builders who generally tell their dealers what they want. So Mr. Modelbuilder, if you would like your dealer to stock some World Engines items, please show him this advertisement.

We recently announced our OS Custom "X" 35. \$14.95. The 29 is now available, \$14.95 — except the first batch is all gone — more coming. Picture No. 1 shows the R/C version of the OS Custom "X" 35. \$18.95. It has a new venturi choke system. See close-up picture No. 3. The drum in the venturi completely closes the air supply off. The air then enters through a bleed port controlled by the micro set screw indicated by the white arrow. This engine is a very powerful 35 c.c. engine. Hogs and it will really throttle down with a good intermediate speed range. We have received about 100 of these engines out — keep the lookout for this one — I think you are in for a surprise. Our Max 15 R/C. \$13.95, also has coupled venturi and exhaust throttle. When low speed cuts in, you can hardly hear it.

On September 19, Russ Brown flew a Max 15 powered Esquire out of sight straight up on a clear day — then rammed down the button and spun her down into view. Some range check but the CW 27 m. Controleaire GM 2 .910 m. went through. This is sort of like Russian Roulette. The OS self neutralizing escapement on the left is a lot better job than the \$2.95 price would indicate. 4 points and compounds also available. \$4.95.

If you agree or disagree with us on some of the ideas brought forth in this memo, drop us a line — others do and we enjoy the letters.

**NEW KITS** — Get the following on order — we'll ship as soon as they are in — deBole Combateer, Cosmic Wind R/C, Harters Student Prince, Midwest scale 5/8A Beeb Yodel D-9 R/C.

I am just finishing up a L/W Cruiser 8 ch. with ailerons about 4 lbs. 9 oz. ready to go. This for a multi trainer.

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solder bellcrank nut, pushrod washers, and both ends of the leadout wire.

**Motor and props:** Considering rat racing is relatively new, no one has all the answers to motors and props. However, I have what I feel is a good, conventional motor and prop selection. If you try the .29 motor, you'll find it much easier starting. Exceptionally good, is the Fox 29X, designed for rat racing. I don't say every .29 motor is a great starter but most of the popular selling motors you see used in contest work are pretty good starting. My Fox 29X also cools easier than my other .29 motors. So you'll find pit stops won't take a year and a day starting your motor and getting back up in the air again.

Drawn on the plans is the Johnson 35, one of the popular 35 motors used in combat. My Johnson is reliable on just about anything from good starting to speed and has adequate cooling. Nylon props, you'll find best for rough landings. An 8 x 8 or 9 x 7 is your best bet.

**FOR PEN BLADDERS:** Bryant Pen Shop, Inc., 1093 Sixth Avenue, New York 36, N.Y.—Ask for medium size for model airplane motors.

### Electric Power

(Continued from page 14)

two relays.

The boys who prefer boats will be interested to know that these motors have been tested in a power "egg" unit that will mount right in the rudder! What a simple way to build an r/c boat. Simply hang a power egg containing the motor and prop on the rudder, steer it just like the rudder alone and have all that extra room in the boat for radio equipment! Seems like most r/c boat boys consider the shaft, stuffing box, etc. something they could do without anyway.

Getting back to free-flight electric models that are already so advanced they need a fuse to "dethermalize" them, brings us to another motor that is being imported. This one is geared down to drive a prop at a reasonable rpm, and comes complete, ready to install and fly. The Japanese have developed a unit called the AP-35 that is slightly larger than the Graupner motors, comes complete with a gearing that includes a built-in free-wheeling unit. A tiny spur gear on the motor shaft drives a much larger gear on a countershaft, with the larger gear lightly spring loaded to slide forward into mesh with the spur gear. When the motor stops, the air pressure on the prop slides it back, pushing the larger gear out of mesh with the spur gear, allowing the prop to free-wheel to reduce air drag in the glide. The recommended maximum size prop is 9" diameter, of the rubber model type. Several plastic props of this type are available locally.

The Japanese unit includes a mounting bracket, tiny nylon spinner-nut, battery case for four standard pencils in series to give 6 volts and, mounted on the battery case, a combination switch and motor-cut-off device. The lever switch is bent away from the contacts, a small rubber band hooked over the switch lever and the front end of the battery case pulls the lever forward to make contact. A fuse that burns through the rubber band allows the switch to open at a predetermined time and stop the motor. The "power unit" consisting of everything you need except the four pencils, may retail for about

Well, it happened! We tried to sell the Defense Dept. on the ZERO — with a large tank — but they wouldn't buy. We suspect the Russians copied it and got to the moon first!

Barney Snyder

Toshi Matsuda's **ZERO**



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**WARNING!** Watch the engine-run—or you may put your ZERO in orbit!

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\$2.49. To go with this, the makers have produced the TK-1, an ROG stick model about twice the size of the Walker Hornet rubber job but with built up frames.

Sample Japanese motors have been shown by the hobby industry importer to American kit manufacturers to see what they can come up with in models. An ounce and a half for the motor, two ounces for batteries (standard pencils) you'd have a power unit that could be nicely slipped into a scale Luscombe Silvaire, Cessna, Piper and the like.

The Germans and the Japanese may give U.S. modelers an entirely new train of thought. They may also be giving us new problems, such as, "Grandpaw, how can I fly my new Curtiss Robin if you keep swiping my batteries for your hearing aid?"

## MAN At Work

(Continued from page 4)

chord—then draw the fore and aft triangles. Now from a point 35% of the distance from the vertical to leading edge, to a point 65% of the distance from the vertical to trailing edge, rough in with a French curve. Wooten and Judge both like 12½% sections. Remember the zip sections? Zip? Oldtime Brooklynes for any section that could be drawn in three seconds. Won more than their share of meets, too.

► Larks Annual Circus should give eastern RC experts something to think about. Larks improvise flying like some musicians make jazz. Ferencske, Zel Ritchie took off, gained ten feet, rolled inverted, then flew the precision pattern followed by the stunt pattern—still upside down. Cuban eights, Immelman turns, spiral dives, etc. On touch and go, came down to two feet, went back up for inverted approach, rolling upright just before touching down. Willard took off ukie style—yes, on lines, with a modified Veco stunt job and switched to radio in mid air. One hot rock picked up a payload suspended between two posts, another simulated a carrier landing, another popped a wing and then ejected a chute to lower the fuselage. Glider towing. The usual "bomb dropping" of course, and one mad flier who dusted a nearby farm with a talcum powder can rigged with a home-made venturi.

► Speaking of things worth watching, there's a lovely SPAD built by Rolf O. Norstog, Norman, Okla. George Aldrich had said this you must see. So now a fiery blast from Rolf who doesn't dig scale judging. Stunt, scale, or RC, judges are always blind as umpires, natch. Maybe the system is bigger than all of us? Ye SPAD had firsts at Wichita, Topeka, Tulsa (twice), and fourth at the Nats.

Rolf spent hundreds of hours putting in wrought rivets, bolts, and nuts (hex), turnbuckles and fittings. Used skin where called for, and plate around the nose section—flat camouflage finish. Doesn't fault the guys that beat him but "whipped" over lack of attention to rivet patterns and skin breaks. Glossy, super slick finishes that the average modeler, and judges, love, are horrors to Rolf. He doesn't know it but this has been the sad lament of many a craftsman. Dull finish and you are kaput—who ever heard of glossy finishes in WW 1? Scale jobs should be more than snazzy toys, claims R. Experts argue this both ways. Murray Hamilton, another scale fiend from way back argues with R,

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**PLAN OF THE MONTH**

- |   |  |   |  |   |   |   |  |
|---|--|---|--|---|---|---|--|
| <b>65.</b> BUTTERCUP: FF, Scale, .02.<br>SKY-SCRAPER: Wakefield, rub.<br>ALTAIR: Rat Racer, UC, .29-.35.<br>Hatschek's Wakefield, tied first World Finals. Altair brings reliability to Rat Racing. | <b>4.</b> SURE FUN: UC Sport, .29-.35<br>PROFILE SILVAIRE: FF Profile, ½A.<br><b>9.</b> ZEPHYR: Rubber, Fuselage<br>Control line or floats. Sport Gassie.<br><b>10.</b> AEROCOM'DER: Scale, U/C, 2 .15.<br><b>11.</b> MARS: Bob Palmer stunt, .29-.35.<br><b>13.</b> NOBLER: Aldrich's Nats Winner, Stunt, .29-.35. Palmer and Aldrich, plus a twin ukie. Imagine! | <b>10.</b> SMOG HOG: Bonner's Multi RC, .19-.35.<br><b>11.</b> STRATOLINER: 2 Half A, U/C.<br><b>13.</b> GUARDIAN: U/C Scale, .29 up. Greatest Multi RC of all time—a beauty! | <b>11.</b> GAMBLER: Mirror Stunt Winner, .29-.35.<br><b>13.</b> DOUGLAS B-66: ducted fan FF, .049. B-66, the ducted fan job that beats all others. | <b>13.</b> T-CRAFT: FF scale, .049.<br><b>14.</b> FENO: Combat, stunt, .29-.35.<br><b>15.</b> PADDY'S WAGON: Contest FF, .049. Paddy's Wagon—one contest job ok for beginner. | <b>14.</b> HEATH PARASOL: RC, FF, Scale, .075 .09.<br><b>15.</b> GUARDIAN: Nats carrier winner, .29's.<br><b>22.</b> SHARPIE: FF Sport, .02-.049.—Guardian a dilly. | <b>15.</b> RE-B: WWI, U/C, .29-.35.<br><b>22.</b> FLAPPING WINGS: Rubber, ornithopter.<br><b>22.</b> BOOMER: FF, sport, pusher, .049. Can planes fly like birds? Ornithopter sure does. | <b>22.</b> MOONEY MITE: ½A Scale FF.<br><b>22.</b> '55 RAMBLER: .29 Team Racer.<br><b>22.</b> WACO CABIN: ½A FF Scale<br>The Mite, stable, real looking low winger Rambler still beats 'em. Waco—Cute! |
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| <b>43.</b> EQUALIZER: .15 to .19 multi, RC.<br><b>44.</b> QUICKIE TRAINER: Speed, .29.<br><b>45.</b> AMAZOOM: FF, 'contest', .15.<br>deBolt's best, the Equalizer?<br><b>46.</b> Amazon—Stan Hill's hi-thrust.<br><b>47.</b> CONVAIR'S DELTA: Jetex FF.<br><b>48.</b> LIL DYNAMITE: .15 stunt, UC.<br><b>49.</b> SWAT: ½A, FF, contest.<br>A trio of exceptional planes.<br><b>50.</b> ASTRO-HOG: Multi RC, .29-.35.<br><b>51.</b> MITCHELL: Profile, .09's, .15's UC.<br>Dunn's low wing radio-tops!<br><b>52.</b> Nothing matches this multi.<br><b>53.</b> The Mitchell a fine flier.<br><b>54.</b> PROPIJET B-47D: U/C, .15's.<br><b>55.</b> RUFFY: Stunt, .29-.35.<br><b>56.</b> NOR'EASTER: Nordic glider.<br><b>57.</b> B-47D, beaut of a project<br><b>58.</b> Ruffy: big winner—it's now!<br><b>59.</b> FOKKER E-3: 1/2A, FF, Scale.<br><b>60.</b> NAVY RACER: Rubber, semi-scale.<br><b>61.</b> WOODY: .29-.35, UC Combat. Hot!<br><b>62.</b> E-3, beautiful model, fine flier.<br><b>63.</b> SPORTCOUPE: .09, U/C, Stunt.<br><b>64.</b> WHATIZIT: .35, Combat, Wooten.<br><b>65.</b> SWIF-F-FT: Jetex, two sizes!<br><b>66.</b> Whatizit, settles fuse-wing debate!<br><b>67.</b> AMERICANO: .15 FF, by Blanchard.<br><b>68.</b> BOMARC: Scale, Jetex, missile.<br><b>69.</b> CUTLASS: Sport U/C, .049's.<br><b>70.</b> Scorpion power makes Bomarc terrific flier. Americano is National Champ's very latest.<br><b>71.</b> GAUCHO: RC Stunt, .29-.35.<br><b>72.</b> THE CHAMP: Best U.S. Wakefield.<br><b>73.</b> LAIRD SOLUTION: U/C Scale, .15-.23.<br><b>74.</b> Gaucho, Argentine Champ, does pattern inverted. Champ, a single Wakefield!<br><b>75.</b> SNAP: Sport U/C, .19-.23.<br><b>76.</b> PELICAN: PAA Cargo, .049.<br><b>77.</b> WINDMILL: FF, 'giro', .02-.049.<br><b>78.</b> For proto take-off and landing realistic Snap tops 'em all. Other two, collector's items.<br><b>79.</b> SATELLITE: Hunter's FF, .19-.35.<br><b>80.</b> SUPERMARINE S-6B: U/C Scale, .09-.15. Satellite is top contest free flight '58-'59. Schneider racer, S-6B seaplane is one of FAST club's best projects.<br><b>81.</b> WACO GLIDER: Scale towliner.<br><b>82.</b> BI-FLI: RC, Inter., .15's.<br><b>83.</b> GUIDED MISSILE—U/C Combat, .35'.<br>Wooten's latest combat is the Guided Missile. Bi-Fli great vari-comp stunter by Kraft.<br><b>84.</b> STUNTACULAR: .29-.35 Mono-Line.<br><b>85.</b> RAMROD 600: FF, .15's.<br><b>86.</b> Tremendous combol Dale Kirk's beautiful stunter, and St. Jean's new Ramrod.<br><b>87.</b> Limited Supply of Plans Listed Below.<br><b>88.</b> Order Early! Check Correct Number on Comp<br><b>89.</b> 24. Aero Bat, Snoopy, Seagull<br><b>90.</b> 25. Corsair, Gyro-Glider, Santanita<br><b>91.</b> 26. Cougar, '55 Nordic Winner, Dizzy Boy<br><b>92.</b> 27. Corben Super Ace, Cessna 310, Profile Lightning<br><b>93.</b> 28. Mustang UC, Gliders 5, Bi-Gone FF. |
|--|

scale is art in building, not part-for-part duplication, as Rolf sees it.

Detail has a way of concealing itself. Recall an ice age incident where an incredible Waco failed one year, yet beat everything all hollow when, the following year, its builder displayed the ship half uncovered. Even rib construction was scale—but how do you know these things when they require you to prove your dream project can fly—and break like anything else on concrete? Rolf says points for multi engines, retracting gears, etc., should be used for tie breaking. Many real planes do not have such features and why penalize a guy's choice of subject? Reminds us of Chet Lanzo's Morane—judges docked him because it said "No stop" in English. Poor Chet just wanted them to read it!

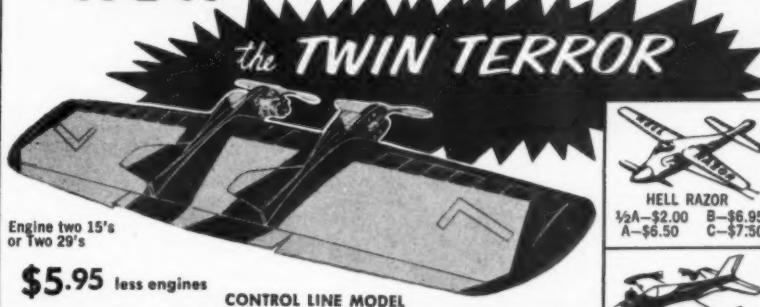
► Cute story from North Pacific. A New Jerseyite who had bought some 5 and 10¢ gliders for his kids was phoned at work one morning by his wife who said, "Don't want to bother you at work but the kids want the planes, and I have been putting them together. I followed all the instructions but I can't find the 'Oregon.'" After some discussion, it developed that printed on the tail were the words, "Bend, Oregon." North Pacific, of course, is located in Bend, Ore. . . . See where Jim Payson, Wichita, cracked 125.78 mph with his Fox 29X proto, this on the new, heavier lines. Not too much difference between proto and true speed, is there? . . . Nothing but free flight the theme of Lakewood Flite-Masters (Ohio) at Elyria contest drawing 140 contestants. Four-minute maxes, 15 secs for HL, 20 for ROG. In PAA Load for .02 gas, time went to 8½ minutes; in PAA Load jet, over 10 minutes. The runways waved like ribbons in the toimais!

Mark Twain Barnstormers (apply Frank Genovese, Jr., Sec., 1247 Market St., Hannibal, Mo.), 20 members, all AMA . . . Bob Neulin, RFD 1, Hellertown, Pa., who'd like to see famous old model designs rerun in plan form, thinks Model Antique Airplane Association would be fine idea. Such as association in full scale aviation. Let's see how many pappy guys write him—will check.

► Small folder labeled Booklet #18, from America's Hobby Center. After adjusting our bifocals—you can lose a finger in a prop with these things!—note a page of fuel formulas. Well! Let's see, 11 for glow and 11 for Diesels, two for ignition, and one for jet—that's simple, unleaded gas. But the others present some interesting combinations. Includes short discourse by Harry Rice, Cheminol. Info on formulas should be good for anyone who understands best application of each and its pros and cons. Anyhoo, AHC sends out the booklet, plus 32 page catalogue, for an unused four cent stamp . . . . Maybe you didn't note, but that Scientific Challenger for .15's to .29's, may signal firm's entry into "big" model field. Look forward to reader reports. Scientific seems to have kept the kids excited with ever changing variety of small ukies—"big" ships could be aimed at growing . . . .

Citizen-Ship disturbed about rumors that superhets are susceptible to servo brush and other extraneous noises. Six months of preliminary flight testing that revealed no such thing. Further, says the firm, superhets have more selectivity than super-regens—which is what you have been flying—and cannot receive as much of interfering noise as super-regens. Tis a fact that not one in a hundred RCers really know anything about radio itself—but brother do they talk it—and there's noth-

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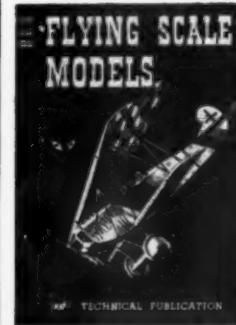
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ing on the market that someone won't tell you isn't from hunger. As Rockwood used to say, if you listened with earphones to an average receiver—we add, with engine running—your hair would turn white. Some of them sound like a jungle cat fight—interference did you say? . . . From the Gopher Hole News (and where do they get these names?), Westminster, Md., the 6th annual U-Control Olympics at Linthicum, Donald Seitz flew an .02 powered grasshopper, made from a Hawk kit. What next? This is a *real* meet! . . . Say here's a must (wearing our blue "sincere" suit): World Wide Radio Control has an absolutely magnificent catalogue of RC items on the market, copiously illustrated, and interspersed with short articles—with pix, on such aspects as installations. An easy to use code tells which receiver is compatible with what transmitter, and with carrier and tone, and all sorts of tone frequencies and percentages of modulation, this can be a dilemma. A buck, refunded first order.

Things like Monogram's Wright Cyclone engine, complete with stand, ignition harness, accessory section, stub prop, gain added respect for plastics . . . did you see the Smith Miniplane (September cover) at the Nats? Its builder, and pilot, Paul White, is a modeler who graduated to flying a real model—parked his ukie, a Miniplane, of course, under the wing. Young Don Smith—his Dad died while the Miniplane was abuilding, flew a modified Vagabond to the EAA Fly-In, making a ukie Tri-Pacer and a vertical-lift model. That cover brought over 100 plan inquiries. Mrs. Smith, 1938 Jacaranda Place, Fullerton, Calif., sells the plans at \$25, the set—33 pages of isometric and scale drawings . . . contestants frantic over broken rubber, try Ed Dolby, 25 Exchange St., Rockland, Mass., for Pirelli . . . Tony Grish had to drop Tornado wood props—no good wood obtainable. Dupont overdue with new product useful for speed props; nylon is not . . . made over 100 test flights with RC duration models using three and four-channel Marcy-T assembled from kits. Add to your list of things that work well

Nat Polk who sparked fund raising for HIAA State Champs deal (they raised \$15,000), the treasurer for the HIAA Model Railroad Division Film Fund Committee who did even better—\$16,500 . . . Bag of Balsa containing 1-1/3 cubic feet, by North Pacific Products recommended, it sez here, for infant blocks, model builders, schools, den mothers and cub scouts . . . recent mention of Dale Root's custom kits of the Ascender, at \$19.95—should be \$24.95 plus buck postage . . . Kentucky Colonels gone one better. The Confederate Air Force Modelers of Tampa, recently had 13-event ukie circus, their Second Jubilee, at local shopping center, sponsored by Maas Brothers Dept. Store. Members are urged never to take off from North end of runway, to drink from Dixie Cups, and never to wear a Union suit.

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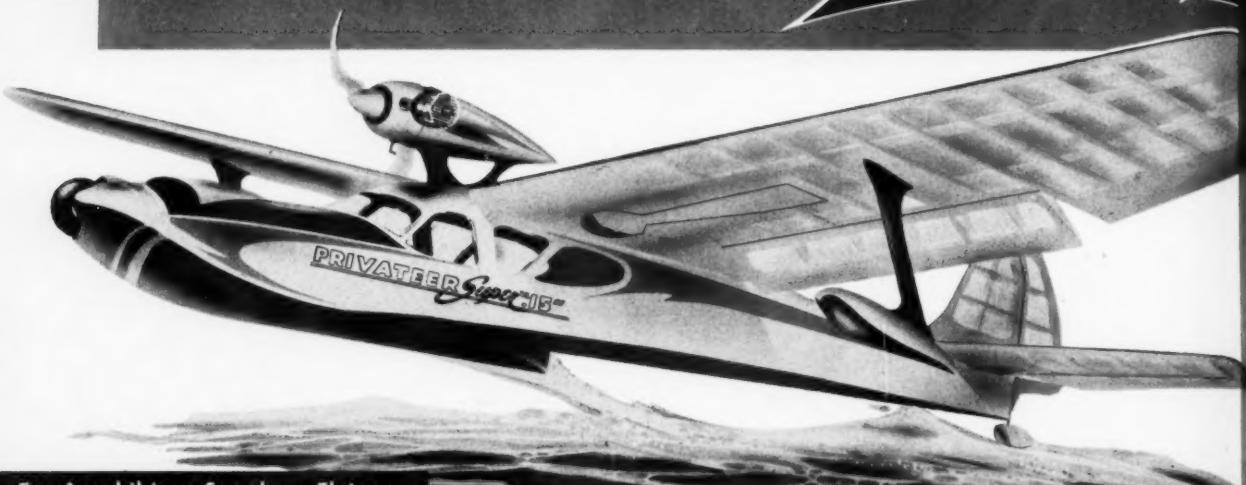
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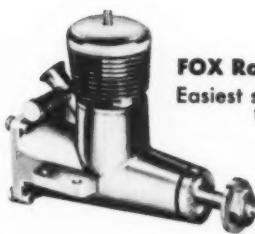
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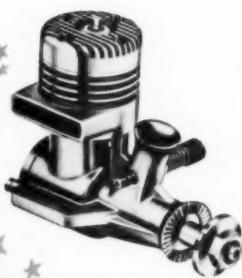
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